FARM PROGRAM ALTERNATIVES

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Farm Incomes and Public Costs

under

Alternative Commodity Programs

for

Feed Grains and Wheat

by

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SUMMARY
(Revised)

This study projects 16 farm program alternatives for wheat and feed grains over the period 1963-67. Its purpose was to estimate the effects of various feed grain and wheat programs on net farm income, government costs and consumer food outlays. Several alternatives were selected to represent programs based on unrestricted production, direct or compensatory payments, Conservation Reserve types of land withdrawal and mandatory control programs. All alternatives analyzed assumed the existing program for 1963. In summary form, the alternatives analyzed are:

Uncontrolled Production (U)

U_1 Current program in effect during 1963; production controls and price supports on feed grains and wheat removed from 1964 to 1967; government storage of excess production to allow "orderly marketings"; present Conservation Reserve contracts allowed to expire as they mature; exports subsidized.

U_2 Same as U_1, but with supply response for wheat and feed grains.

U_3 Same as U_2, but with export subsidies terminated.

U_4 Same as U_2, but all Conservation Reserve acreage returned to production in 1964.

Direct Payments (D)

D_1 Same program as U_1, except net farm income maintained at $13 billion through direct payments.

D_2 Same program as U_2, but with net farm income maintained at $13 billion through direct payments.

D_3 Same program as U_1, except direct payments maintaining per capita farm income at the 1963 level.

D_4 Same program as U_1, except direct payments maintaining net farm income at the average of the last three years.

D_5 The 1963 acreage diversion program for feed grains and wheat continued to 1967 with Conservation Reserve contracts allowed to expire as they mature.

D_6 Same program as D_5, but continuation of 26 million acres in Conservation Reserve program through 1967.

D_7 Same program as D_6, but 1963 acreage diversion programs relaxed in 1966 to balance supply and utilization of feed grains and wheat at 1963 prices with a minimum level of stocks.

Conservation Reserve (C)

C_1 Conservation Reserve increased from 26 million acres in 1963 to 38 million acres in 1967, balancing production and utilization of feed grains and wheat; exports subsidized, acreage diversion programs other than Conservation Reserve dropped in 1964.

C_2 Same program as C_1, but Conservation Reserve increased to 55 million acres by 1967.

C_3 Same program as C_1, but Conservation Reserve increased to 80 million acres by 1967.

Mandatory Controls (M)

M_1 Ten percent reduction in feed grains and wheat acreage below unrestricted levels; exports subsidized; government storage used to facilitate "orderly marketings"; Conservation Reserve contracts phased out as they expire.

M_2 Twenty percent reduction in feed grains and wheat acreage with other conditions same as M_1.

Production, farm prices and incomes were estimated for the various alternatives over a five year period, starting with 1963 and ending with 1967. Estimates of several variables affected by farm programs are included in the following table so that each program can be "measured" for fit.

It is not possible, of course, to evaluate different programs in terms of total personal satisfaction or dissatisfaction which farmers would gain from each of the different types of programs. But in terms of income and costs the more important variables are included and estimates for each of the programs are given for 1967.

Summary table of projected income costs, output and stock level in 1967 under alternative programs for feed grains and wheat.

	Proposed alternative programs							
	U_1	U_2	U_3	U_4	D_1	D_2	D_3	D_4
	(billion dollars)							
Net farm income	7.5	7.6	7.6	7.5	13.0	13.0	12.0	10.6
Government costs for feed grains and wheat	1.2	1.2	1.4	1.5	5.5	5.4	4.4	3.0
Total national outlay for food and agriculture[a]	39.9	39.8	40.0	40.3	39.9	39.8	39.9	39.9
Total consumer retail costs for food and fiber	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7
Total output of feed grains and wheat (million tons)	211.9	207.1	218.1	221.7	211.9	207.1	211.9	211.9
Total stocks of feed grains and wheat (million tons)	100.2	91.0	138.6	128.4	100.2	91.0	100.2	100.2
	D_5	D_6	D_7	C_1	C_2	C_3	M_1	M_2
	(billion dollars)							
Net farm income	13.8	14.7	12.8	11.9	12.7	16.3	11.5	14.4
Government costs for feed grains and wheat	2.5	2.7	2.1	1.6	1.5	3.0	0.9	1.2
Total national outlay for food and agriculture[a]	45.9	47.2	45.1	43.8	43.6	47.5	43.2	45.7
Total consumer retail costs for food and fiber	63.5	63.5	62.4	63.1	63.1	64.2	63.1	65.1
Total output of feed grains and wheat (million tons)	185.9	179.5	194.9	197.4	187.6	174.0	193.2	176.8
Total stocks of feed grains and wheat (million tons)	45.0	45.0	45.0	79.0	45.0	45.0	51.6	45.0

[a] Includes total value of farm marketings plus the cost of all federal government programs and expenditures for agriculture.

The 1967 figures are perhaps most meaningful in the sense that they represent a point in time where short-run adjustments to the various alternatives might be fairly well realized. Data for intervening years are included in the text.

The programs differ considerably in the effect each would have on farm income by 1967. Removing governmental controls and price supports under unrestricted production alternatives (U) would involve a projected income decline of about $5.7 billion--$7.6 billion in 1967 compared to $13.3 in 1962. This represents a drop of about 40 percent over the five year period. After 1967 the tendency would be for lower prices to restrain production, which suggests that income would not decline much further (or perhaps would improve somewhat in subsequent years).

Direct payment programs (D) would maintain farm income at approximately the 1962 level. Programs D_1 through D_4 assume no production restraints and estimate the cost of maintaining farm income at a predetermined level with direct government payments to farmers. Thus, D_1 and D_2 would hold farm income at $13.0 billion; D_3 would maintain per capita farm income. Because outmigration of farmers is expected to continue under all programs, aggregate farm income would fall under D_3, but per capita income would be maintained. Program D_4 would maintain farm income at the average of the past three years. Since past years have been lower, the average would tend to decline over time. Thus, D_4 would give the lowest farm income of all direct payment programs.

Programs D_5 through D_7 assume direct government payments with production controls through acreage diversion programs. These programs would maintain farm income at approximately its present level as would other direct payment programs; but there would be a substantial difference in government costs between direct payment programs with and without production-control.

Conservation Reserve programs (C) would tend to maintain farm income near present levels. However, the size of the land retirement embodied in a program is of importance in determining the exact level of farm income. C_1, the 38 million acre land retirement program, would allow farm income to fall slightly by 1967. C_2, a 55 million acre program, would hold farm income at approximately its present level through 1967, and C_3, 80 million acres, would increase farm income substantially.

Reduced production under the mandatory control program, M_1, would maintain 1963 prices (except wheat, which would become competitive with feed grains) and gross farm receipts from crops and livestock through 1967. But net farm income would decline because of a substantial decline in government payments after 1963. The 20 percent reduction in farm production under M_2, however, would quickly deplete excess stocks and drive prices and farm income above the 1962 level. Continuation of M_1 or M_2 beyond 1967 would bring higher farm commodity prices and income than those indicated.

The several program alternatives would have quite different implications on government costs and consumer expenditures. Government costs would decline under all unrestricted production programs. These would not be pure "free market programs," since they assume government storage and loan programs to "keep the bottom from dropping out" of farm prices. Hence, storage policies would cause stocks to increase under all unrestricted alternatives, even with declining prices. But with unrestricted production government costs in 1967 for feed grain and wheat are estimated to be less than one-half of the 1962 level.

The projections indicate that the government cost involved in raising farm income a given amount above unrestricted production levels would be highest for direct payment programs without production controls, substantially less for direct payment programs with production controls, and is least for mandatory control programs. Conservation Reserve programs would be somewhat less costly than direct payment programs with moderate levels of land retirement; however, with larger programs such as C_3 the cost would increase significantly. Also, part of the lower cost of Conservation Reserve programs in this study would be due to eliminating the feed grain-wheat price differential under these programs.

Government costs under mandatory control programs would decline and remain low. Most of the $.9 billion of government costs in 1967 under M_1 would be made up of (a) export costs and (b) storage costs for a minimum level of stocks. Costs for M_2, a 20 percent reduction, would be higher than for M_1, a 10 percent reduction, because the sale of stocks would not be feasible after 1965 under the former alternative (M_2). Hence, net treasury costs would increase after 1965 as availability of stocks for sale by the government were eliminated under M_2.

From the projections, these general conditions prevail for treasury costs for the various farm program alternatives analyzed: unrestricted production (U) and mandatory control (M) programs would entail the lowest government costs; voluntary programs (D and C) would entail the highest costs.

Another possible criterion for evaluating farm program alternatives is the total cost of agriculture and food per se. This cost is made up of the value of farm marketings, which represents the outlay of consumers for food at the farm market level, and the total federal outlay on agricultural service and action programs. This total national outlay for food and agriculture is indicated on the third line of the summary table.

Unrestricted production would provide the lowest total cost to the public with regard to this criterion. Included are programs D_1 through D_4 which would not restrict production but would maintain farm income with direct payments. Direct payment programs which restrict production, D_5 through D_7, would be substantially more costly, both in terms of government costs and consumer outlay for food and agriculture at the "farm gate." Thus, D_5 would be approximately $6 billion more costly to consumers than any of the programs not restricting

production. In other words, the greater farm income attained under D_5, compared to unrestricted production alternatives, would be approximately equal to increased government payments and consumer expenditure for food at the farm level under the direct payment program. Increased farm income under restricted production alternatives would come through higher food outlays and/or higher treasury costs.

Implementation of a Conservation Reserve program in 1964 would result in a total national outlay for food and agriculture in 1967 ranging from $43.8 billion to $47.5 billion. Again the larger land retirement program, C_3, would cause costs to increase substantially. As with other program alternatives, total expenditures for food would increase under all three programs with an increasing population and increased levels of disposable income.

With a 20 percent reduction in output of feed grains and wheat from unrestricted acreage levels, the M_2 alternative, costs for food and agriculture would be substantially greater than for the M_1 alternative. Most of the greater outlay of M_2, compared to M_1, would be due to higher prices for farm products. The greater government costs under M_2, compared to M_1, is mostly an accounting result: the sale of feed grain and wheat stocks would cease when they reach the stated minimum level, 45 million tons. Net program costs would increase accordingly and the total national outlay for food and agriculture would increase, primarily due to increased farm prices.

Consumer costs can be broken into two categories: one level is associated with those alternatives which would not restrict production, and a higher level is associated with those alternatives which would restrict production. The projections show that all unrestricted production alternatives as well as all direct payment alternatives not restricting production would have the same level of consumer retail costs, $59.7 billion. Other restrictive type programs would entail similar but higher costs, with C_3 and M_2 being most restrictive and also most costly. These two alternatives also would provide increased farm income and entail higher government costs.

The range of programs examined in this study is large enough to include alternatives which are feasible in terms of the existing state of agriculture and the interests of different groups, both within and surrounding agriculture. However, it is possible that modifications of the alternatives outlined would provide more realistic policy opportunities. For example, a further step might be comparison of the same set of alternatives, except with the same level of farm prices or net income. Also, the effect on consumers' real income could be studied in the situation where a drop in farm income caused consumer prices of food to decrease. The resulting change in real income might have an effect on the entire economy, an effect which may need further study.

INTRODUCTION

Production and price policies have been in effect for American agriculture over most of the last 30 years. These programs have represented major efforts to improve the income position of agriculture. However, general public agreement has not been attained on the type of program which is most acceptable. While numerous alternatives have been tried, each program has included features which either (a) did not solve the problem for which it was designed or (b) did not meet the approval of the numerous and diverse groups which have interest in agricultural policies. Frequently old programs have had to be abandoned or new ones tried because the production, income or cost effects of policies put into effect were not anticipated.

It is possible that an important portion of the debate on short-run agricultural policy stems from lack of data projecting the effect of different programs on farm income and government and consumer costs. Hence, this analysis has been completed and projections have been made to provide additional data upon which public decisions might be based. These projections provide estimated effects of programs based on unrestricted production, direct payments, Conservation Reserve types of land withdrawal and mandatory controls on output. Several modifications of each program are examined as they relate to levels of farm income, export subsidies, government storage and supply response.

Objectives

The purpose of this study is to estimate the effect of the several program alternatives on net farm income, government costs of supply reduction, consumer outlays for food and total public costs for food and agriculture. It is hoped that these projections then can be used by many interested groups in weighing the income gain of a particular policy against its costs either to taxpayers or consumers. In this sense the estimates should help fill a void which has long existed: namely, the necessity for the public to make policy decisions in the absence of sufficient data indicating the effect of different programs on farm income and costs.

Scope of Study

The estimates are directed solely at the short-run problem of large commodity supplies and depressed farm incomes as they have existed or might exist in the absence of price and production control policies. The analysis is restricted to wheat and feed grains only, since they represent two of the major commodity problems in U. S. agriculture. The analysis is not directed at the more basic structural problem relating to the quantity of and returns to resources in agriculture.

Certain aspects of the foreign export and school lunch programs are attached to the alternative policies analyzed. However, the focus of this study is not on the alternatives of expanding demand to solve the farm problem. Rather, it is on adjustments in production under the major program alternatives outlined above.

The consequences of several farm programs for wheat and feed grains are analyzed in this study. These crops are examined jointly because of their substitutability. For each program, farm prices and incomes are estimated over the years 1963-67, inclusive. Consumer retail food outlays and government costs also are computed for the same programs and years. Comparisons of farm income and consumer and government costs under various alternative programs provide some insight into the social costs and benefits of each program. Considered along with the degree of controls and administration involved, these comparisons provide some empirical basis for judging the desirability of alternative policies.

The purpose of this study is not to rate programs in terms of social desirability. Instead, estimates of costs and benefits are provided to improve the basis for public decisions consistent with farmer, consumer and national interests. Hence, we present only the projected outcome of different programs in respect to their effect on level of farm income, land use, crop balances and storage, government costs and consumer outlays for food. These quantities are derived for the national level only and not for particular commodities or geographic regions. Groups interested in costs and benefits of farm programs might (a) use the results presented, along with other facets of programs, to evaluate the desirability of alternative farm policies or (b) provide more refined impirical estimates for these purposes.

A considerable range of programs is considered. One set of programs is based on uncontrolled production but allows various degrees of indirect price supporting mechanisms such as storage of sufficient surplus quantities to allow "orderly marketing" which indirectly provides a floor under the price of commodities stored, exports under Public Law 480, a Conservation Reserve and other existing programs which might be continued. This set of programs approaches free market conditions, although the auxiliary policies mentioned above prevent as severe a drop in prices as some previous studies of a completely

"free market" have indicated.[1/] For purposes of brevity, we will use the term
unrestricted production for these programs, although they are not purely of a
free market nature. A second set of programs considered is based on direct
payments as a means of farm income compensation and/or output control
through withdrawal of land from production. A third set of programs is based
on voluntary land withdrawal of the Conservation Reserve type, with up to
80 million acres shifted out of crops. Mandatory programs, the fourth and
last set considered, assume mechanisms to reduce acreage and marketings of
wheat and feed grain in the absence of direct payments and price supports. The
direct payment, Conservation Reserve and mandatory programs also are con-
sidered in respect to several variations in storage programs, grain exports,
land withdrawal and farm income levels. For all of these situations it is assumed
that storage of surpluses would be continued to assure orderly marketing of grains.
By orderly marketing, we refer to reduction of surplus stocks only at the rate that
they could be absorbed readily in the expansion of livestock output.

Previous Studies of Unrestricted Output

Before turning to the estimates and predictions of the current study, we
review results of some previous analysis of uncontrolled production. Several pre-
vious studies have been made estimating farm prices and incomes with production
controls and price supports removed. In general, these studies have been made
for a single alternative and a particular point in time and employ certain assumptions
in respect to disposition of surpluses. These "free market" studies compare most
nearly with the unrestricted production alternatives analyzed in this report,
although this alternative contains certain price "floor" mechanisms which a "free
market" would not. Also, the nature and time period of the "free market" situations
do not correspond exactly with the unrestricted production situations of the current
analysis. Because of these differences and the need for a proper base in comparisons,
we now review the several "free market" studies made over the past few years.

1/ For estimates of "free market" prices, see Shephard, Geoffery, et al.
Production, Prices and Income Estimates and Projections for the Feed-
Livestock Economy, Iowa Agr. Exp. Sta. Special Report 27, Ames, Iowa.
August 1960.

For another set of estimates, see U. S. Department of Agriculture, Projections
of Production and Prices of Farm Products for 1960-65 According to Specified
Assumptions, in U. S. Congress, Senate, Report from the U. S. Department
of Agriculture and a statement from the Land Grant Colleges Advisory
Committee on farm price and income projections, 86th Congress, 2nd Session,
Senate Document 77, pp. 3-24, U. S. Gov't. Printing Office, Washington, D. C.,
1960. See also Paulson, Arnold, et al. The Amount and Cost of Grain Land
Retirement to Balance Production and Reduce Stocks Under Two Levels of
Prices in the Mid 1960's. Center for Agricultural and Economic Adjustment,
Iowa State University, Economic Information Bulletin 157.

Shepherd, et al. projected the implications for production, prices and income if price supports were abandoned and stocks of feed grains, wheat and cotton were held at their 1958 levels.[2] Export subsidies on agricultural commodities were eliminated and the Conservation Reserve acreage was continued at a 28 million acre level in 1960. A gradual reduction in Conservation Reserve was assumed to occur after 1960 since old contracts would not be renewed as they expired. Based on these assumptions, Shepherd, et al. estimated that prices of hogs and beef cattle, respectively, would decline to $.11 and $.12 per pound by the 1962-63 crop year. The corn price would fall to $.66 per bushel and wheat price would decrease to $.74 per bushel. By 1962-63 the farm value of livestock marketed would decline 21 percent below the 1958-59 value. Net income from livestock products might decline 50 percent according to the study. As a consequence of lower farm prices, the annual consumer expenditures of a family of four on livestock products would be 6.7 percent or $46 per family lower in 1963 than in 1958. The time considered by this study might be considered the "shake out" period since it does not consider recovery in prices which might eventually occur as more resources might be withdrawn from agricultural production.

The Ellender report, prepared by the Department of Agriculture with the aid of the Interregional Committee on National Policies for Agricultural Prices and Income (IRM-1), also explored the outcome of relaxing production controls for agriculture.[3] The projections were made under the assumption that all production controls except those on tobacco were removed and price supports were maintained at levels that would permit an orderly reduction of excessive farm commodity stocks over a seven-ten year period. Export subsidies were assumed to continue and excess wheat and cotton stocks to be liquidated through Public Law 480 programs. In addition, such programs as Section 32, special milk, school lunch, Sugar Act, Wool Act, and marketing agreements and orders were assumed to continue without specific change. The Conservation Reserve program was considered to be maintained at 30 million acres.

The provisions for price supports, export subsidies and a large Conservation Reserve acreage in the Ellender report caused projected price and income levels to be higher than those of the Shepherd study. The projected increase in total farm output from 1955-57 to 1965 was 20 percent or approximately 2 percent per year. Growth in livestock output was projected to reduce feed grain stocks by seven million tons annually. Greater marketings were projected to decrease the average farm price of wheat to $.90 per bushel, corn to $.80 per bushel, beef cattle to $.15 per pound and hogs to $.11 per pound. Because of the decline in farm prices, realized net farm income was projected to drop to $7 billion by 1965, or 46 percent below the 1958 level.

2/ Shepherd, Geoffrey, et al. op. cit.
3/ U. S. Department of Agriculture, Projections of Production and Prices of Farm Products for 1960-65 According to Specified Assumptions.

Robinson estimated the change in farm output, price and income between 1959 and 1965 under somewhat similar assumptions. [4] His estimates were based on elimination of direct price supports and acreage controls but continuation of programs for exports, school lunches, research, extension, soil conservation, marketing orders for milk, fruits and vegetables and a Conservation Reserve of 30 million acres. He estimated that by 1965 beef would decline to $.15 per pound, or 34 percent below the 1959 level. Hog prices were projected to drop to $.14 per pound, a 1 percent decline from the 1959 level. The projected unsupported corn and wheat prices were, respectively $.98 and $1.18 per bushel. Gross farm income was projected to decline by only 6 percent, but because production expenses are highly stable and unresponsive to lower prices, net farm income would fall 19 percent from 1959 to 1965. Robinson's projections are somewhat less extreme than those of the Shepherd and Ellender studies. The free market program would reduce annual government outlays for farm programs up to $2 billion per year in the short run and to a maximum of $3.5 billion in the long run. This saving would represent about 2 percent of the federal budget. In the long run, Robinson estimated that savings from removal of direct farm price support programs would amount to 4 percent of the federal budget.

Tweeten and Heady estimated the aggregate effect on farm output, prices and income with a return to unrestricted production and readjustment of government export programs so that an additional 5 percent of the farm output would be channeled through price setting markets. [5] Again, current wool, sugar, tobacco, school lunch and conservation programs were assumed to continue and the Conservation Reserve was assumed to remain at 30 million acres. Under the output or supply response to price and input or demand response to price estimated in the study and under conditions of equal rates of shift in supply and demand, an attempt was made to trace the pattern of adjustment to a free market equilibrium. Predictions were made for a period following release into regular market channels of additional farm marketings diverted by government programs in the past. However, it was assumed that there would be no domestic disposal of current surplus stocks. Initially, farm prices received and gross income were predicted to decline 20 and 15 percent, respectively. Net income above operating expenses would fall by 25 percent; above production expenses, by 40 percent. However, due to reduced supplies, after a four year period of adjustment through the market mechanism, prices and income would improve. Prices received would recover to 90 percent of the initial level and gross income to 93 percent of the initial level according to the results of this study. Net income above operating expenses would eventually recover to 92 percent and net income above production costs to 88 percent of the initial level. Using a labor response

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[4] Robinson, K. L. "Possible Effects of Eliminating Direct Price Support and Acreage Control Programs," Farm Economics, Dept. of Agr. Econ., Cornell University, Ithaca, New York, 1960. pp. 5813-5820.

[5] Tweeten, Luther G. and Earl O. Heady. Resource Demand and Structure of the Agricultural Industry, Iowa State University Press, Ames, Iowa, forthcoming 1963. Chapter 16.

equation to determine labor outmovement, the expected additional migration prompted by lower income would be expected to be no greater than 7 percent. Hence, since net income was predicted to decline by 12 percent, per worker incomes would be lower at the end of the period than at the outset.[6/]

The above ex ante studies project the consequences of possible free market program in future years.

The following ex post studies appraise the implications of free markets had they been used in place of the actual programs of earlier years. Brandow's ex post analysis considered the consequences of eliminating government controls. He estimated the effect on farm prices and income if supplies diverted from the markets in the 1955-57 period had been placed on the market.[7/] His results suggest that livestock prices would have averaged 11 percent lower and crop prices 20 percent lower. Because of the small decline in production expenses, the realized net income of farm operators would have decreased 35 percent below actual 1955-57 income. The drop in retail food prices would have been 4.67 percent, but the consumer price index would have dropped only 1.5 percent.

Using a similar approach, Shepherd, et al., predicted that if wheat and feed grain stocks had been held constant from 1952 to 1958 (i.e., surplus production marketed rather than put into storage) total net cash income from farming would have decreased 34 percent. They estimated the average price of beef cattle at $.17 per pound and of hogs at $.13 to $.15 per pound. The actual prices averaged $.18 per pound for both hogs and beef during the period. The actual average corn price was $1.32 per bushel during the 1952-58 period, but without government stock accumulation the corn price would have been from $1.13 to $.97 per bushel according to their estimates.

6/ The assumption in the above study that an increase in the underlying demand parallels a change in the underlying supply may not be realistic. Recently the supply curve for agricultural commodities has moved to the right (farmers willing to sell more at the same price) more rapidly than the demand curve has shifted in this direction (consumers willing to buy more at the same price). It is likely that this trend will continue and further impede efforts of the price mechanism to bring needed resource adjustments.

7/ Brandow, G. E. Interrelations Among Demands for Farm Products and Implications for Control of Market Supply, Pennsylvania Agr. Exp. Sta. Bul. 680. University Park, 1961.

PROJECTED EFFECTS OF UNRESTRICTED PRODUCTION

In this study, we project farm production, prices, income, expenses and net returns to 1967 under unrestricted production. We use the term unrestricted in a qualified manner, since the present Conservation Reserve program is assumed to continue under certain alternatives. Also, if production exceeds a maximum level considered consistent with farmer and public interest, the government is assumed to engage in purchase and storage operations to reduce effective feed supplies. This assumption is added for realism, since the government likely would take measures to avoid extremely low prices. For purposes of this study we consider extremely low prices to be those expected with the market supply of grain so great that livestock feeding herds could not be expanded rapidly enough to utilize supplies. In the short run, physical restraints place limits on the rate at which livestock numbers and production can be expanded. Thus, while markets are somewhat unrestricted, they are not completely "free."

Since farmers already are committed to the 1963 compensatory payment program, all programs of unrestricted production are assumed to begin in 1964. When the estimates of this study were made, some provisions of the 1963 program were not formulated or not clear. Hence, while there are some discrepancies between the actual 1963 program and the 1963 program used in this study, these differences are not large. The general procedure for computing costs and returns under the various alternatives is detailed in the Appendix. However, additional assumptions needed to interpret the results are discussed below. In all cases the projections are based on the assumptions of average weather and existing trends in population and per capita income. Deviations from these conditions, e.g., abnormal weather, could cause projections for an average year to deviate considerably from prices and incomes actually realized.

General Assumptions

Projections to 1967 of unrestricted commodity programs are made under the following assumed conditions: The national population will grow 1.75 percent annually, about the current rate. (Since projections are made only to 1967, a small deviation in this rate of growth would not entail serious error.) The period will be characterized by peace and moderate prosperity with per capita real incomes increasing on the average slightly less than 2 percent per year. Productivity increases, reflected in yield trends, will continue under all types of programs.

Since only programs for wheat and feed grains are analyzed, other commodity programs for dairy, cotton, rice, wool, etc., are assumed to remain

unchanged and programs of conservation, extension, education, research and
marketing orders are expected to continue. [7] The present school lunch program
is also assumed to continue with its effect included in the domestic demand for
farm products. Export subsidies are extended for cotton and other commodities
and for feed grains and wheat under certain alternatives. The proportion of sale
price of exports subsidized depends upon the farm price level. Some programs,
such as the Conservation Reserve, have not been specific for particular crops
in the past. To meet the conditions and assumptions of this study, a Conserva-
tion Reserve program would have to be oriented toward feed grains and wheat.
This condition would not be a radical departure since the past Conservation
Reserve programs mainly has been effective in shifting land from grain. An
estimated 61 percent of land in Conservation Reserve was diverted from feed
grains and wheat in 1959 and 1960.

The projections for the several alternatives are based on previous
estimates of demand and supply relationships. Aside from a few simple re-
lationships, new mathematical descriptions of the economic situation (i.e.,
regression models) were not obtained for this study. Instead, existing infor-
mation on the elasticity of supply and demand and response relationships were
applied in projecting from the "state of agriculture" in 1962 to 1963 and sub-
sequent years. It also was necessary to employ certain assumptions for the
several alternatives examined. Not all possible assumptions were examined and
it is hoped that other analysts will derive projections based on alternative condi-
tions. The assumptions used in study are stated under the definition of the alter-
natives studied and in more detail in the Appendix.

A large number of estimates were derived in the steps leading to projections
of incomes and costs. These basic data include acreages, yields, utilization and
prices of grain and livestock.

7/   Under each alternative considered in this study, commodity programs other
than for grains and general programs for education, research, food utiliza-
tion and conservation (excluding the Conservation Reserve), are assumed
to continue at approximately the 1962 level. Government expenditures on
these nongrain programs are set at $4.6 billion per year. (Some of this
cost can more realistically be imputed to foreign aid, national defense,
etc., but existing accounting procedures do not permit separate listing
of these nonagricultural costs.) Treasury outlays for dairy and school
lunch are assumed constant for all program alternatives. The cotton acreage
is fixed throughout all programs, and tobacco acreage is increased by a
nominal amount to accommodate increased use at a rate commensurate with
past data. No attempt is made to adjust the cost of government dairy and
school lunch programs for changes in prices. The volume of purchases for
these programs is also assumed to be fixed; however, it is recognized that
this assumption introduces some error into estimates of program implica-
tions. Also, although we assume nongrain government program costs and
farm receipts from cotton, wool, etc., to remain unchanged, we recognize
that it would be very difficult in practice to separate the economic con-
sequences of grain programs from other commodities.

Specific Assumptions

The four unrestricted production alternatives are indicated by U and a corresponding subscript. (These same symbols will be used in the discussion and tables which follow.) The symbols for each of these situations or alternatives and the corresponding conditions and assumptions distinguishing them are summarized below:

U_1: Unrestricted production with no significant aggregate supply response to lower prices in the short-run period; extension of present Conservation Reserve program with contracts not renewed as they expire; continued export subsidies under P.L. 480 and other foreign export programs; feed grain exports at 15.5 million tons and increasing; wheat at 18 million tons, the proportion subsidized falling as farm price level decreases; price "floor" provided by government purchase and accumulation of stocks if production of feed grains and wheat exceed maximum utilization discussed in the Appendix; wheat prices allowed to reach an open market equilibrium relative to feed grain prices if wheat production exceeds nonfeed uses.

U_2: Same as U_1, but with a delayed aggregate supply response for feed grain and wheat based on an elasticity of .15 with respect to lower prices for these crops. Acreages remain the same, but reduced variable inputs of fertilizer, insecticides, herbicides, etc., cause reduced aggregate output.

U_3: Same as U_2, but without any government export subsidies for feed grains and wheat.

U_4: Same as U_2, but with termination of all Conservation Reserve contracts beginning with the 1964 crop year. (Additional production of feed grains and wheat on Conservation Reserve acreage estimated using table A-7.)

Tables 1, 2, 3, 4, 5, 7, 8 and 11 contain background figures on planted acreage, grain and livestock production, land and feed utilization, feed-grain exports, prices received by farmers and feed concentrate balances for each year over the period 1963-67. Tables 6, 8, 10 and 12 summarize the estimated costs and incomes for the unrestricted production programs U_1, U_2, U_3 and U_4. The planted acreages, yields and production underlying the income and cost figures are discussed below to give a more complete understanding of the income and cost figures which follow.

Acreages

The estimated <u>planted</u> acreages for the unrestricted production alternatives[8/] are specified in table 1 for feed grains and for other major crops. Acreages are based on plantings in years such as 1947 to 1954 and 1959 to 1960 when crop acreage restrictions did not exist or were not extreme.

Current acreage trends have been incorporated into the acreage estimates. The corn acreage is increased and the oat acreage is decreased to conform with recent trends toward more intensive rotations with a greater proportion of row crops. The estimates also reflect some increased emphasis on sorghum production at the expense of wheat and barley acreage due to the use of hybrids and other factors increasing the comparative advantage of sorghums in some areas.

The total planted acreage of crops is lower than the acreage prior to 1956 because of land in the Conservation Reserve program. Table 1 shows the annual acreages in the Conservation Reserve if existing contracts were terminated as they mature. The program acreage drops from an estimated 26 million in 1963 to 13 million in 1967. Because we anticipate that some acreage currently in Conservation Reserve will be permanently converted to grass and trees, a decline in total land in crops is projected. Some decline in total cropland also is projected since reduced prices and incomes engendered by unrestricted production are expected to result in abandonment of marginal land currently being used for crops.

As a net effect of these forces, total cropland used for crops is estimated to be somewhat smaller in the 1964-67 period than in other periods of the past (table 2).[9/] Cropland used for crops is projected to decline by five million acres below the level of the early 1950's.[10/] A total of 375 million acres of cropland used for crops in 1967 is projected under the assumption that 75 million acres of the nation's 450 million acres of "plowland" would be in other uses. However, these 75 million acres would not be idle, but would be used for other purposes such as pasture or construction uses. The 450 million acres presently classified as plowland includes some land which is unsuited for any use other than forestry, grazing and recreation.

8/ Table 1 contains acreage estimates only for U_1, U_2 and U_3. Additional production under U_4 was estimated by assuming each acre released from the Conservation Reserve increased feed grain and wheat output by .5 tons.

9/ USDA, Land and Water Policy Committee, <u>Land and Water Resources --</u> <u>A Policy Guide</u>, Washington, D. C., 1962. This projection is consistent with other estimates that have been made of cropland requirements in future years.

10/ "Cropland used for crops" is considered a more meaningful measure of cropland than "total cropland" because the latter quantity, about 450 million acres, includes a large amount of land which would not be used for crops under any of the price or control assumptions used in this study.

Table 1.   Planted acreage, yields, and production of designated crops with acreage unrestricted under Programs U_1, U_2 and U_3[a].

	Planted Acreage							
	Actual			Estimated				
Item	1960	1961	1962	1963	1964	1965	1966	1967
				(Million Acres)				
Corn	81. 7	66. 8	66. 0	66. 9	82. 3	83. 1	83. 5	84. 0
Oats	31. 5	32. 5	30. 2	30. 0	28. 9	29. 0	28. 7	28. 6
Barley	15. 6	15. 8	14. 7	14. 4	11. 5	11. 4	11. 2	11. 1
Sorghum (All)	19. 6	14. 3	15. 0	14. 6	17. 5	18. 0	18. 1	18. 4
Wheat	54. 9	55. 6	49. 5	48. 0	65. 9	64. 9	64. 2	63. 8
Other[b]	41. 6	45. 9	46. 5	46. 7	45. 5	46. 2	46. 7	47. 2
Total Above	244. 9	230. 9	221. 9	220. 6	251. 6	252. 4	252. 4	253. 3
Conservation Reserve[c]	28. 7	28. 3	26. 0	26. 0	18. 5	15. 0	14. 5	13. 0
	Yields/Planted Acre							
	Actual			Estimated				
				(Bushels)				
Corn	47. 8	54. 3	55. 3	53. 0	50. 9	51. 7	52. 6	53. 5
Oats	36. 6	31. 1	34. 2	34. 5	34. 8	35. 0	35. 1	35. 3
Barley	27. 6	25. 0	29. 2	28. 2	29. 1	29. 5	29. 9	30. 2
Grain Sorghum	31. 6	33. 6	33. 9	31. 0	31. 9	33. 0	34. 1	35. 2
Wheat	24. 7	22. 2	22. 0	23. 7	21. 3	21. 8	22. 3	22. 7
	Production							
	Actual			Estimated				
				(Million Bushels)				
Corn	3, 908	3, 626	3, 644	3, 546	4, 189	4, 294	4, 390	4, 495
Oats	1, 155	1, 011	1, 032	1, 035	1, 006	1, 014	1, 008	1, 010
Barley	431	396	429	406	333	337	336	336
Grain Sorghum	620	480	509	453	559	593	619	649
Wheat	1, 357	1, 235	1, 092	1, 138	1, 405	1, 414	1, 432	1, 449

[a] Compensatory payment feed grain and wheat programs in 1963 only.   Other programs including tobacco, cotton, wool and dairy programs to continue as at the present.   See text for more detail.

[b] Includes soybeans, cotton, and tobacco.

[c] Conservation Reserve contracts expire as contracts mature.

Table 2. Land utilization with unrestricted acreage under Programs U_1, U_2 and U_3, reconciling planted acreage and total cropland used for crops in selected years.

Item	Actual								Estimated			
	1952	1953	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
	(Million Acres)											
Cropland Planted												
Principal crops[a]	271	273	243	251	245	231	222	221	252	252	252	253
Other crops	81	81	82	76	79	77	78	79	81	82	82	82
Summer Fallow	28	26	30	31	31	31	32	31	29	29	30	30
Cropland Withdrawal[b]	--	--	24	20	23	40	46	47	15	12	12	11
Total Cropland Used for Crops and Removed by Programs	380	380	379	378	378	379	378	378	377	376	376	375

a Crops listed in table 1. See also program restrictions listed in the text and table 1.

b Estimated withdrawal by government programs of acres normally classified as "cropland used for crops".

Reduction in feed grain acreage due to the 1961 emergency feed grain program was estimated to be 25 million acres. However, since non-participants increased feed grain by around five million acres, the net reduction from the program was approximately 20 million acres. With the estimated 20 million acres effectively removed from cropland by the Conservation Reserve added to the feed grain acreage, total withdrawal of land from crops amounted to 40 million acres in 1961 (table 2). The 1962 program cut even deeper into land used for crops, mainly because the new wheat program diverted an estimated six million acres from production. Projections for the 1963 cropland balance sheet under the unrestricted production alternatives are similar to actual cropland uses in 1962 (see table 2).

Yields and Feed Utilization

Yield projections under program alternatives are based on 1940-60 yield trends, but are adjusted upward somewhat to partially recognize new yield levels experienced in recent years. Yield estimates also consider the interaction between production and acreage as total plantings increase.[11]

The annual increase in corn production due to improved production practices is predicted at .99 bushel per acre, a rate of about 2 percent per year at current yield levels. This rate of increase, the average of the 1940-60 period, is slightly greater than the domestic rate of expansion in aggregate demand for feed grains and wheat and provides one basis for the "excess capacity" of U. S. agriculture. The actual corn yield in any one year is, of course, dependent not only on acreage and the trend in improved production practices, but also on prices and weather. Projections are based on average weather, although this quantity is somewhat difficult to define. While the yields

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[11]   The yield equations used for table A-1 express output per acre as a function of time and acreage. The yield equation for corn is $Y = 3.3 + .99T - .20A$ where Y is the predicted bushel of corn per acre, 3.3 is a constant, T is time (1960 = 60, 1961 = 61, etc.) and A is current acres of corn, in millions. The acreage variable, included to account for the differential quality of land, indicates that yield declines, on the average, by .2 bushel per acre when corn production is expanded by one million acres. Per acre production declines as output is expanded to marginal land. Hence, it is not practical to assume a constant yield on all acres. Using the yield-acreage interaction coefficient for corn, we would thus project a corn yield of 53.3 bushel per planted acre in 1964 with a total corn acreage of 66 million, but a yield of 49.3 bushel per acre if corn acreage is increased to 86 million acres.

appear low, based on 1961 and 1962 experience, research suggests that yields (table 1) were unusually high in those years due to favorable weather.[12] Assumptions of average weather lead to yield projections for 1963 somewhat below the 1961 and 1962 realized yields.

While the yield equations in the Appendix do not include prices, research has shown that a drop in farm prices might cause yields to increase.[13] Hence, price response has been accounted for by adjusting output of feed grains and wheat for changes in prices under alternatives U_2, U_3, and U_4. The supply response used .15, is taken from a recent study and assumes that a sustained 10 percent drop in commodity price (or increase in factor prices) will decrease farm output of feed grain and wheat by 1.5 percent over a four year period.[14]

The estimated acreages are multiplied by yields to provide estimates of production of feed grains and wheat (table 3). This total production is allocated among major uses, with portion which is used for different classes of livestock taking into account the phase of the livestock cycle, the livestock supply response to price, and feed conversion ratios. (See tables 3, 5, 7, 9 and 11.) The resulting production and slaughter data, when inserted into the demand equations in table A-2, provide estimates of the resulting livestock prices. Feed prices are based on total feed utilization (see the Appendix). The response in feed supply is assumed to lag one year behind price changes, hence, price changes in one year under unrestricted production are not assumed to effect output until the following year. By using the above described production process and price relationships, and considering commodity supply and demand relationships, the set of outputs and prices for 1963 to 1967 is generated (see table 4). The prices and output in turn provide The basis for determining cash receipts each year. The supply and input responses are also incorporated in estimates of production expenses (see the Appendix) for alternatives which assume supply response.

12/ Thompson, Louis M. Weather and Corn Production, Center for Agricultural and Economic Adjustment, Rpt. 12, Ames, 1962. Thompson, Louis M. An Evaluation of Weather Factors in Production of Corn, Center for Agricultural and Economic Adjustment, Rpt. 12T, Ames, 1962.

13/ See Tweeten, Luther G. and Heady, Earl O., Short-Run Corn Supply and Fertilizer Demand, Iowa Agr. Exp. Sta. Res. Bul. 507, Ames, 1962.

14/ Tweeten and Heady, Resource Demand and Structure, op. cit., Chap. 16. The aggregate supply response is estimated for circumstances where it is not possible to substitute one crop for another in production. The elasticity would be higher if other crops could be substituted for grains, but to avoid depressing other crop prices, we apply the aggregate supply response estimate. Grain production is decreased .15 percent for each one percent decrease in grain prices. This relation is reflected in livestock production only if grain stocks remain constant.

Production, Prices, Income and Costs under the U_1 Alternative

We now turn to income and cost effects of alternative U_1 with unrestricted production. The U_1 alternative assumes no aggregate crop supply response to lower prices, termination of Conservation Reserve contracts as they expire, feed grain exports at 15.5 to 17 million tons per year, and continuation of export subsidies to maintain wheat exports at 600 million bushel per year. The projected annual production of grain and livestock for this alternative is given in table 3.

The output of livestock and livestock products (table 3) reflects the interaction between supply and demand relationships, trends and elasticities of supply and demand. Response in the livestock sector to increased market quantities of feed and resulting lower prices of feed result in a fairly rapid initial expansion in poultry, egg and hog production. Prices for eggs, pork and broilers are quickly depressed because of their low price and income elasticities. Demand trends and elasticities are more favorable for beef. Although initially, beef output could be increased only slightly, the overall gain in production from 1963 to 1967 is projected to be large.

Under the unrestricted production alternatives, feed grain prices are projected to decrease more than 20 percent from 1963 to 1967. The price of corn decline from $1.07 in 1963 to $.85 in 1967 (table 4). While the price of cattle and calves would drop over 20 percent, prices of other livestock generally would decline somewhat less. Projected hog prices are $13.50 per hundredweight in 1967 as compared to $16.60 in 1961. Even with a sizeable federal program for dairy products continued under these programs, milk prices would decline from $4.20 per hundredweight in 1963 to $3.83 in 1967. [15/]

15/ The feed balance sheet is based on the crop year. In 1965, for example, the beginning stock includes wheat and feed grains carried over into the new crop year which begins October 1965 for corn and sorghum, July 1965 for small grains. Some of the production in crop year 1965 may have been planned and started in 1964, e.g., winter wheat. Utilization also is measured on a crop year basis and for 1965 extends from July or October, 1965 to July or October, 1966. Subtracting utilization from supplies indicates remaining stocks on July or October of 1966 (again using the 1965 crop year as an example). Stocks in table 5 include all feed grains and wheat. Feed grain stocks include mainly corn, since its density tends to lower storage costs below oats and barley. It is not apparent that the optimum combination of feed grain and wheat stocks is being maintained, however. The production and utilization pattern (table 5) indicates that feed stocks decline or remain stable while wheat stocks tend to increase. No study has been made of the optimum ratio. Wheat stocks are flexible and can be used for food or feed. Also, since wheat is less bulky, storage costs are lower for a given tonnage. These considerations suggest the stock trend in table 5 might be consistent with national interests. However, since wheat, grain sorghums and barley are close substitutes in production, a small change in price could change relative production and hence, contributions to stocks. These changes in prices, production and stock composition could be made without significantly altering the results for program U_1 or for later programs.

Table 3.   Production of Crops and Livestock with unrestricted production (Program U_1)

	Grain Production							
	Actual			Estimated				
Item	1960	1961	1962	1963	1964	1965	1966	1967
	(Million Tons)							
Corn	109.4	101.5	102.0	99.3	117.3	120.2	122.9	125.9
Oats	18.5	16.2	16.5	16.6	16.1	16.2	16.1	16.2
Barley	13.4	9.5	10.3	9.7	8.0	8.1	8.1	8.1
Grain Sorghum	17.4	13.4	14.3	12.7	15.6	16.5	17.3	18.2
Wheat	40.7	37.0	32.8	34.1	42.1	42.4	43.0	43.5

	Livestock Production							
	Actual			Estimated				
	(Billion Pounds)							
Cattle and Calves	28.27	26.69	a	31.12	32.49	33.71	35.46	38.00
Hogs	19.22	20.22	a	21.53	22.81	22.80	22.60	22.84
Sheep	1.65	1.69	a	1.73	1.80	1.86	1.91	1.95
Chickens	6.35	7.18	7.15	8.26	8.68	8.96	9.26	9.56
Turkeys	1.49	1.88	1.62	1.60	1.88	1.93	2.01	2.07
Eggs (10 million)	6.15	6.18	a	6.14	6.44	6.57	6.65	6.72
Milk	122.80	125.46	126.51	128.95	131.72	134.83	138.24	142.00

a Data not available when manuscript was prepared.

Table 4.   Prices received by farmers for livestock, feed grains and wheat with unrestricted production (Alternatives U_1, U_2, U_3 and U_4)[a].

	Feed Grain and Wheat Prices						
	Actual[b]		Estimated				
Item	1960	1961	1963	1964	1965	1966	1967
	(Dollars/Bushel)						
Corn	1.00	1.08	1.07	.94	.91	.88	.85
Oats	.60	.64	.61	.54	.52	.50	.49
Barley	.84	.98	.89	.79	.76	.73	.71
Grain Sorghum	.83	.99	.93	.82	.79	.76	.73
Wheat	1.74	1.83	1.93	1.03	1.00	.97	.94

	Livestock Prices						
	Actual		Estimated				
	(Dollars/Hundredweight)						
Cattle and Calves	20.70	20.30	20.10	19.60	18.90	17.50	15.80
Hogs	15.30	16.60	15.90	15.00	13.80	13.70	13.50
Sheep	15.60	13.80	16.20	15.40	14.80	14.20	13.50
Chickens	16.30	13.40	15.00	13.90	13.20	12.70	12.10
Turkeys	25.40	18.90	23.70	19.60	19.00	18.20	17.50
Eggs (Cents/Dozen)	36.0	35.4	36.3	32.7	30.3	29.0	27.7
Milk	4.21	4.22	4.20	4.00	3.94	3.88	3.83

a The same prices are projected for U_1, U_2, U_3 and U_4 since it is supposed that storage operations would be used to hold grain prices at these levels.

Although the unrestricted production alternative U_1 assumes continuation of export subsidies and retention of the land in the Conservation Reserve, some accumulation of government stocks of wheat and feed grains must occur to avoid even lower prices. The feed concentrate balance sheet (table 5) shows that even with a large expansion in livestock feeding, feed production exceeds utilization each year from 1964 to 1967.[16/] Stocks of feed grains and wheat, starting from 79 million tons at the end of 1963, are projected to increase to 100 million tons by the end of 1967. If these stocks were placed on the market rather than in storage, obviously, livestock and crop prices would be lower than those indicated in table 4.

Because demand for the farm commodities under consideration is inelastic, the increase in farm output under the U_1 alternative does not compensate for lower prices. Consequently, cash receipts from farm marketings are projected to decline over the entire period, 1963-67 (table 6). Without the assumed government purchase and storage operations, the estimated price decline would be even greater.

Non-money income[17/] is not affected appreciably by the unrestricted production alternative. However, direct government payments decline almost $1 billion after 1963. Payments for diversion of land from crop production (except Conservation Reserve) are assumed to terminate after 1963. Total gross income projection is $2 billion lower in 1964 than in 1963 and declines even further by 1967. Production expenses rise in 1964 because of input expenses incurred in expanding production. As a result, net farm income is projected to decrease to $9.6 billion in 1964, or 28 percent below the estimated $13.3 billion of 1963.

Commodity Credit Corporation costs increase over the period 1963-67 because of the expansion of storage.[18/] By 1967, CCC operation costs are projected to total $.8 billion for feed grains and wheat. (If stocks of feed grains and wheat could be reduced to a 45 million ton level and remained fixed, CCC costs could be less than one-third the amount indicated in table 6.)

The lower farm prices allow sizeable savings on export subsidies over the period. Not only can the per unit subsidy be reduced, but further savings in government outlays are possible because more grain can be exported without

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16/ These prices are estimated under the qualifications and assumptions listed under U_1, page 9. For estimated prices under "free market" conditions, see Shephard, op. cit.

17/ Non-money farm income includes the value of home consumption and gross rental value of farm dwellings. The estimate declines because of fewer farm units. For further explanation see the discussion of non-money income in the Appendix.

18/ Additional quantities of wheat and feed grain purchased at market prices (see table 4 for prices).

Table 5.   Feed concentrate balance, with unrestricted production (Program U₁)ᵃ.

| | Actual | | | Estimated | | | | |
Crop year	1960	1961	1962	1963	1964	1965	1966	1967
	(Million Tons)							
SUPPLY								
Stocks beginning of yearᵇ	114.0	126.9	110.9	97.0	79.4	81.9	86.6	93.2
Production of feed grains	155.6	140.6	143.1	138.2	157.0	161.0	164.4	168.2
Wheat-rye for feed	1.7	1.7	1.7	1.9	7.3	7.6	8.1	8.6
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c	c	c	c
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-product feeds fed	27.8	28.8	29.4	30.0	31.0	32.0	33.0	34.0
Total available	302.2	294.7	282.4	266.4	275.2	283.0	292.6	304.5
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	132.9	134.5	136.1	139.5
Bye-product feeds fed	27.8	28.8	29.4	30.0	31.0	32.0	33.0	34.0
Feed grain exports	12.2	17.6	15.5	15.6	15.8	16.2	16.5	17.0
Feed grain for non-feed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	193.3	196.4	199.4	204.5
Stock at end of year	126.9	110.9	97.0	79.4	81.9	86.6	93.2	100.0

ᵃ The current compensatory payment plan is assumed for 1963, unrestricted production except for the Conservation Reserve after 1963. See text for assumptions of program U₁.

ᵇ Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

ᶜ Assuming wheat production enters feed markets if greater than non-feed utilization; wheat stock changes included with all stocks after 1963.

Table 6. Estimated farm expenses and income, government costs for fiscal years 1963-67 and consumer outlay for food with unrestricted production, no supply response, present Conservation Reserve program and with continued export subsidies (Program U_1).

	1963 [a]	1964	1965	1966	1967
			(Million dollars)		
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings [b]	35,988	34,844	34,687	34,650	34,060
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	2,994	2,942	2,870	2,772
Direct government payments	1,595	574	540	541	530
Gross income	40,633	38,412	38,169	38,061	37,362
Production expenses	27,371	28,812	29,024	29,493	29,821
Net farm income	13,262	9,600	9,145	8,568	7,541
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost [c]	-497	84	153	208	207
Stock carrying charge [d]	526	474	499	538	585
Export programs					
(feed grains and wheat)	1,200	384	353	326	270
ASCS (Acreage diversion and CR) [e]	1,250	222	180	174	156
Costs of feed grain and wheat programs	2,479	1,164	1,185	1,246	1,218
Other government cost [f]	4,573	4,522	4,559	4,597	4,664
Total government cost	7,052	5,686	5,744	5,843	5,882
Consumer retail food outlay [g]	58,900	58,800	59,100	59,700	59,700
Total National outlay for food and agriculture [h]	43,040	40,530	40,431	40,493	39,942

a/ A compensatory payment program is assumed for 1963. See text and table 5 for additional comments.

b/ Includes values of feed grains and wheat under loan or sold to the Commodity Credit Corporation (CCC).

c/ Value of purchases less receipts from sales. Recovery value 70 percent of market value of stocks sold in 1963.

d/ Carrying charge based on average stock level (less 10 million tons of feed grain and 3 million tons of wheat in private hands at end of crop year) and multiplied by a carrying charge of $7 per ton.

e/ Agricultural Stabilization and Conservation Service payments for diverted feed grain and wheat acres plus Conservation Reserve in 1963 only, Conservation Reserve payments after 1963, see the Appendix table A-7. "Other" government expense includes 60 million dollars for administration of 1963 feed-grain programs. At $5,000 per employee, this would support an average of 240 workers per state.

f/ Includes cost of cotton, wool, rice, tobacco, dairy and other programs. Some of these such as conservation (ACP) and research programs do influence feed grain and wheat production, costs and returns.

g/ Estimated using derived farm prices for Livestock and Livestock products, margins from past USDA data. Includes an estimate for "other" foods. For further explanation see the appendix.

h/ Includes cash receipts from farm marketing (35,988 million) and total government costs (7,052 million) of programs.

subsidies at the lower prices. The estimated export costs depend heavily on the future trend in commercial demand and institutional arrangements with other nations. The assumptions used in computing export subsidies in table 6 are discussed in the Appendix.

Total government costs are reduced from $7.1 billion in 1963 to $5.9 billion in 1967. The major reason for the rather small reduction in costs is because current programs other than for feed grains and wheat are assumed to continue to 1967 and because fairly large storage programs are required. The shift from net government stock sales (as in 1962) to net purchases offsets part of the savings from reduced farmer payments and export subsidy costs. (Even if all government costs, including export subsidies and the Conservation Reserve, were eliminated for feed grain and wheat commodity programs over the period 1964 to 1967, the total annual treasury cost would decline only about 31 percent below the projected 1963 level. Annual outlays up to one-third billion dollars would still be required to maintain emergency stocks. Hence, total treasury outlays for agriculture would average about $4.9 billion or 31 percent less than the projected 1963 outlay of $7.2 billion.

The "other" government costs for agriculture shown in table 6 are for overhead administrative costs as well as sizeable outlays for dairy, cotton, tobacco, wool, sugar and other commodity programs. In addition, these costs entail government expenditures for agricultural conservation programs, research, school lunch, extension, special conservation, FHA, REA, food stamp plans and other programs which are assumed to continue even under the unrestricted production alternative for wheat and feed grain of this section. These programs and outlays are assumed to continue for all programs analyzed in this study.

The total consumer outlay for food is included in the second to last line in table 6. Even if farm programs were to remain "fixed" at the 1962 level, with farm production and prices also remaining unchanged, the total consumer outlay for food at retail would increase. This increase would come about through (1) growth in population (2) some continued inflation in prices (3) some positive income elasticity in the demand for food as consumer incomes increases and (4) positive income elasticities for the services incorporated with food and sold at retail. With no change in programs and all farm commodity prices "fixed" at the 1962 level, the estimated consumer retail outlay for food (in billions) is 58.9 for 1963, 59.3 for 1964, 60.7 for 1965, 61.8 for 1966 and 63.1 for 1967. Hence, the figures of table 6 (and also comparable figures for later tables and program alternatives) should be compared with the above figures, with agriculture at the "fixed 1962 level," as a measure of the costs of programs to consumers.

Perhaps a better indication of the total social cost of food is represented by the last line of table 6. It is the sum of the value of farm marketings and the total federal outlay on agriculture. The value of farm marketings represents the outlay of consumers for food at the farm market level before charges for transportation, processing, retailing and other services are incorporated with food costs.

Summing the above two items, the total public cost for farm products and agriculture would decline by $3 billion between 1963 and 1967 under the unrestricted production represented by U_1. The saving to the public would be only about half of the magnitude of decline in net farm income over the same period. Net farm income is projected to decrease by $5.7 billion, an amount much larger than the projected $3.1 billion decline in value of farm marketings and government payments to farmers because most production expenses are maintained or increased with the greater crop acreages and livestock numbers under unrestricted production.

Unrestricted Production with Aggregate Supply Response Alternative U_2

Our second set of projections, alternative U_2, is for unrestricted production with an aggregate supply response for feed grains and wheat. This response indicates a 1.5 percent decrease in production for each 10 percent decrease in the price of feed grains and wheat. The feed balance sheet (table 7) and financial or income budget (table 8) for program U_2 are considered to be more realistic projections of the effects of unrestricted production than are comparable quantities for U_1. Alternative U_2 includes the major assumptions of alternative U_1. However, it is based on an aggregate supply elasticity of .15 for feed grains and wheat and thus supposes a smaller output and a somewhat larger income under unrestricted production. Because of the delayed effects in the response of output to lower price and because the supply elasticity is not large, the differences between U_1 and U_2 are small in respect to farm income. The maximum rate of livestock expansion would be attained under U_2, as well as under U_1, but since production would be reduced somewhat, stocks would accumulate to only 91.0 million tons by 1967 under U_2, 9 million tons less than under U_1. Table 7 suggests that production would be nearly in line with utilization by 1967 since annual stock accumulation then would be only about two million tons of feed grains and wheat.[19]

Average prices under U_2 would be $.85 for corn, $.94 for wheat, $13.50 for hogs, and $15.80 for cattle and calves in 1967. These prices are the same as for alternative U_1 since it is expected that government storage activity would provide a "floor" which would maintain prices at this level. As under U_1, these minimum prices would also be reached under U_2. However, because of the supply response under U_2, output would be somewhat lower than under U_1. Consequently, gross receipts from farm marketings are slightly less in table 8 than in table 6. Lower production expenses are projected for U_2 to conform with the smaller output. Since the reduction in expenses for U_2 as compared to U_1 would more than compensate for the reduction in cash marketings, net income would be greater under U_2 than under U_1. Table 8 suggests a decline in net income of 43 percent over the period 1963-67 for alternative U_2.

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[19] The stock accumulation would result with the phasing out of the Conservation Reserve Program. If the Conservation Reserve acreage were expanded from the assumed 13 million acres in 1967 (see table 2) to 17 million acres at an additional government cost of about $50 million, a market equilibrium would be reached.

Table 7.   Feed concentrate balance under unrestrictive production with supply response (Program U_2)[a].

Crop Year	Actual			Estimated				
	1960	1961	1962	1963	1964	1965	1966	1967
	(Million Tons)							
SUPPLY								
Stocks beginning of year[b]	114.0	126.9	110.9	97.0	79.4	81.9	85.1	88.6
Production of feed grains	155.6	140.6	143.1	138.2	157.0	159.8	161.9	164.5
Wheat-rye for feed	1.7	1.7	1.7	1.9	7.3	7.3	7.5	7.9
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c	c	c	c
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-product feeds fed	27.8	28.8	29.4	30.0	31.0	32.0	33.0	34.0
Total available	302.2	294.7	282.4	266.4	275.2	281.5	288.0	295.5
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	132.9	134.5	136.1	139.5
By-product feeds fed	27.8	28.8	29.4	30.0	31.0	32.0	33.0	34.0
Feed grain exports	12.2	17.6	15.5	15.6	15.8	16.2	16.5	17.0
Feed grain for nonfeed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	193.3	196.4	199.4	204.5
Stock at end of year	126.9	110.9	97.0	79.4	81.9	85.1	88.6	91.0

[a] The current compensatory payment plan is assumed for 1963, unrestricted production except for Conservation Reserve after 1963.

[b] Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[c] Assuming wheat production enters feed markets if greater than nonfeed utilization; wheat stock changes included with all stocks after 1963.

Table 8.   Estimated farm expenses and income, government cost and consumer outlay for food with unrestricted production, present Conservation Reserve, subsidized exports and with supply response (Program U_2) [a/]

	1963	1964	1965	1966	1967
	(Million dollars)				
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	34,844	34,648	34,571	33,953
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	2,994	2,942	2,870	2,772
Direct government payments	1,595	574	540	541	530
Gross income	40,633	38,412	38,130	37,982	37,255
Production expense	27,371	28,734	28,975	29,389	29,667
Net farm income	13,262	9,678	9,155	8,593	7,588
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	84	153	208	207
Stock carrying charge	526	474	494	517	538
Export programs					
(feed grains and wheat)	1,200	384	353	326	270
ASCS (Acreage diversion and CR)	1,250	222	180	174	156
Costs of feed grain and wheat programs	2,479	1,164	1,180	1,225	1,171
Other government cost	4,573	4,522	4,559	4,597	4,664
Total government cost	7,052	5,686	5,739	5,822	5,835
Consumer retail food and fiber outlay	58,900	58,800	59,100	59,700	59,700
Total National outlay for food and agriculture	43,040	40,530	40,387	40,393	39,788

a/ See table 6 for footnotes. The aggregate supply elasticity for feed grains and wheat is assumed to be .15 in four

A continued annual decline in net farm income is projected over the period 1963-67 (table 8) due to downward pressures on price created by overproduction of feed supplies. The drop would be quite severe in 1967. A major reason for this large drop in 1967 is that physical limitations on increasing breeding herds and expanding livestock production would not permit the cattle cycle to peak until 1967.

Total government costs are projected to decline by approximately 17 percent from 1963 to 1967. With 1963 prices, the consumer retail outlay for food would continue to rise because of inflation and growth in national income and population. However, the total outlay of $59.7 in 1967 under U_2 would be 6 percent less than the $63.5 projected consumer retail outlay if the 1963-type program were continued through 1967.

Adding cash receipts from farm marketing to total government costs gives one measure of consumer outlay for farm products per se. This total national outlay for food and agriculture is shown in the last line of table 8. Total public costs would decline by $3.3 billion between 1963 and 1967. This decline is only slightly more than half the $5.7 billion decline in farm income projected over the same period. The projected decline of $5.7 billion in farm income under U_2 (table 8) is somewhat less than the decline projected under U_1 (table 6).

With a decline in net income of 40 percent under U_2, farm employment is predicted to drop 16 percent (over the normal amount of outmigration) during the period.[20] Net income would fall by a greater percentage than employment; thus net income per worker would be considerably lower in 1967 than in 1963. Since the number of workers and the number of people in farming tends to be highly correlated, per capita farm incomes also would decline.[21]

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[20] Tweeten and Heady, Resource Demand and Structure, op. cit., Chaps. 8 and 9. The indicated elasticity reflects induced migration over and above the normal rate of outmigration from farms.

[21] The situation could be intensified after 1967 because of the tendency of productivity to grow more rapidly than domestic population and demand. The question might be raised: If rising productivity has caused output to increase faster than utilization, why is the current production-utilization disparity not greater? One major reason has been the extremely large increase in feed grain exports in recent years. In 1953, feed grain exports were only 3.9 million tons. Feed grain exports increased 2.4 times between 1957 and 1962, and current feed grain exports are 14 to 17 million tons per year. Whether the present rates of expansion can be maintained depends on the continued development of world markets, particularly on the actions of Common Market block. We based our feed grain exports on a one-half million ton annual increase in commercial demand (see the Appendix).

Unrestriced Production with Unsubsidized Exports under Alternative U_3

Alternative U_3 assumes the elimination of export subsidies for feed grains and wheat after 1963. Otherwise, its assumptions are the same as for U_2. Under U_3 (table 9), stocks of feed grain and wheat are projected to accumulate rapidly and each 138.6 million tons by the end of 1967. This level of government stock accumulation is necessary to avoid depressing farm prices below levels indicated in table 4. Wheat exports are projected to be cut back sharply by termination of government subsidies and export operations in 1964.[22] Feed grain exports (table 9) would not be affected as severely and by 1967 the lower prices would permit 17.0 million tons to be exported without subsidies. Situations U_2 and U_3 differ primarily in the government's method of handling excess production. Under U_2, more would be exported and under U_3, more would be stored. Under either method the domestic prices of table 4 would be maintained. Farm receipts, expenses and net income are the same in tables 8 and 10.

A sizeable shift in government cost would take place, however, as surpluses were shifted between exports and surplus stock accumulation. The assumption used throughout this study is that only the acquisition cost of subsidized exports need be charged to the program. The transportation and disposal costs of subsidized exports are not added to the government cost of the agricultural program because these costs are assumed to be charged to foreign aid programs and are considered to be offset by the benefits to foreign countries. Consequently, the government cost of disposing of a given tonnage through exports or acquisition to stocks is assumed to be nearly the same.[23] However, the cost of the stock operations continues to mount because of carrying charges. Thus, the cost of removing a given tonnage through stock accumulation is greater because of continue storage costs. Aside from acquisition and stock carrying charges, government costs otherwise would be nearly equivalent under U_2 and U_3. Government costs for stock acquisition and carrying charges would be $221 million larger under U_3 than under U_2 in 1967 (tables 8 and 10).

Since the unrestricted programs generate excess production, it is not feasible to place on the market excess stocks presently held. Hence, the excess stocks have no immediate resale value without export opportunities. On the average, past government accumulations of feed grains have been stored about five years before being sold. At $.20 per bushel for corn, storage for five years costs $1.00 per bushel. It follows that even in the highly unlikely event that the recovery value of corn were $1.00 per bushel, it would be more economical to destroy the corn in the field or immediately to dump it on export markets (assuming transportation, distribution and other costs equal the value of the commodities as aid to foreign countries) than to store the corn more than

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22/ Estimates of the commercial export demand for wheat and feed grains are presented in the Appendix.
23/ The relationship is not exact because of commercial storage operations, time lags, etc.

Table 9.   Feed concentrate balance under unrestricted production with supply response and with unsubsidized exports (Program U₃)ᵃ.

Crop Year	Actual			Estimated				
	1960	1961	1962	1963	1964	1965	1966	1967
	(Million Tons)							
SUPPLY								
Stocks beginning of year[b]	114.0	126.9	110.9	97.0	79.4	95.1	110.7	125.4
Production of feed grains	155.6	140.6	143.1	138.2	157.0	159.8	161.9	164.5
Wheat-rye for feed	1.7	1.7	1.7	1.9	18.9	18.6	18.7	18.7
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c	c	c	c
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-product feeds fed	27.8	28.8	29.4	30.0	31.0	32.0	33.0	34.0
Total available	302.2	294.7	282.4	266.4	286.8	306.0	324.8	343.1
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	132.9	134.5	136.1	139.5
By-product feeds fed	27.8	28.8	29.4	30.0	31.0	32.0	33.0	34.0
Feed grain exports	12.2	17.6	15.5	15.6	14.2	15.1	16.5	17.0
Feed grain for nonfeed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	191.7	195.3	199.4	204.5
Stock at end of year	126.9	110.9	97.0	79.4	95.1	110.7	125.4	138.6

[a] The current compensatory payment plan is assumed for 1963, unrestricted production except for Conservation Reserve after 1963. See text for assumptions of program U₃.

[b] Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[c] Assuming wheat production enters feed markets if greater than nonfeed utilization, wheat stock changes included with all stocks after 1963.

Table 10.   Estimated farm expenses and income, government cost and consumer outlay for food with unrestricted production, present Conservation Reserve Program, supply response and without export subsidy (Program U₃). ᵃ/

	1963	1964	1965	1966	1967
	(Million dollars)				
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	34,844	34,648	34,571	33,953
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	2,994	2,942	2,870	2,772
Direct government payments	1,595	574	540	541	530
Gross income	40,633	38,412	38,130	32,982	37,255
Production expenses	27,371	28,734	28,975	29,389	29,667
Net farm income	13,262	9,678	9,155	8,593	7,588
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	526	507	463	403
Stock carrying charge	526	520	629	735	833
Export programs (feed grains and wheat)	1,200	--	--	--	--
ASCS (Acreage diversion and CR)	1,250	222	180	174	156
Costs of feed grain and wheat programs	2,479	1,268	1,316	1,372	1,392
Other government cost	4,573	4,522	4,559	4,597	4,664
Total government cost	7,052	5,790	5,875	5,969	6,056
Consumer retail food and fiber outlay	58,900	58,800	59,100	59,700	59,700
Total National outlay for food and agriculture	43,040	40,634	40,523	40,540	40,009

five years. This conclusion applies only when stock levels are high. The value of stocks at lower levels may be high because of possible emergency uses, e.g., defense or drought.

Between 1963 and 1967 net farm income is projected to decline by $5.7 billion under alternative U_3. This decline would be still almost twice as great as the decline of $3 billion in total national outlay of food and agriculture (last line of table 10).

Unrestricted Production with Termination of Conservation Reserve under Alternative U_4

Projections for alternative U_1 to U_3 were based on the assumption that existing Conservation Reserve contracts would be terminated as they mature. When this study was initiated the estimated contracts remaining in force were as follows: 26 million acres for 1963, 18.5 million acres for 1964, 15 million acres for 1965, 14.5 million acres for 1966 and 13 million acres for 1967. Tables 11 and 12 project the implications of continuing the 26 million acre Conservation Reserve and the current feed grain program through 1963, with termination of all government control programs (including the Conservation Reserve) for feed grains and wheat for 1964 and after.

The increased production from termination of all Conservation Reserve acreage projected under U_4 (table 11) would cause stocks to mount rapidly and accumulate to 128 million tons by 1967. These stocks would be even greater than the record high at the end of 1960. This build-up of stocks would result even under the sizeable federal programs for dairy, school lunch and exports assumed for alternative U_4.

The increased production made possible by the release of Conservation Reserve acres and marketed at prices maintained by storage policy as indicated in table 4, would cause gross receipts to farmers (table 12) to be maintained above previous alternatives in unrestricted production. It should be emphasized that gross receipts would be higher only because of the assumption that the government would purchase production in excess of the maximum annual level of use.[24] If excess output were not removed by surplus storage, gross receipts would be lower for U_4 (table 12) than for U_3 (table 10).

Increased production under U_4 also would require more inputs. Therefore, production costs would be higher under U_4 than under U_3. In fact, projected production costs are raised to levels such that net farm income would be slightly lower for U_4 (table 12) than for U_3 (table 10) in 1967.

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[24] This maximum level of use is governed by ability of livestock breeding herds to expand. Beyond this, U_4 assumes government storage to maintain the level of prices in table 4.

Table 11. Feed concentrate balance, with unrestricted production with supply response and with subsidized exports and no Conservation Reserve (Program U_4)[a].

	Actual			Estimated				
Crop Year	1960	1961	1962	1963	1964	1965	1966	1967
	(Million Tons)							
SUPPLY								
Stocks beginning of year[b]	114.0	126.9	110.9	97.0	79.4	90.6	101.0	111.6
Production of feed grains	155.6	140.6	143.1	138.2	164.2	165.7	167.4	177.5
Wheat-rye for feed	1.7	1.7	1.7	1.9	8.8	8.6	9.1	9.3
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c	c	c	c
Imports of feed grains	..4	.5	.3	.5	.5	.5	.5	.5
By-product feeds fed	27.8	28.8	29.4	30.0	31.0	32.0	33.0	34.0
Total available	302.2	294.7	282.4	266.4	283.9	297.4	311.0	332.9
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	132.9	134.5	136.1	139.5
By-product feeds fed	27.8	28.8	29.4	30.0	31.0	32.0	33.0	34.0
Feed grain exports	12.2	17.6	15.5	15.6	15.8	16.2	16.5	17.0
Feed grain for nonfeed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	193.3	196.4	199.4	204.5
Stock at end of year	126.9	110.9	97.0	79.4	90.6	101.0	111.6	128.4

[a] The current compensatory payment plan is assumed for 1963, unrestricted production except for Conservation Reserve after 1963.

[b] Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[c] Assuming wheat production enters feed markets if greater than nonfeed utilization, wheat stock changes included with all stocks after 1963.

Table 12. Estimated farm expenses and income government cost and consumer outlay for food with unrestricted production, supply response, export subsidies and termination of all Conservation Reserve contracts in 1964 (Program U_4). [a]

	1963	1964	1965	1966	1967
	(Million dollars)				
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,920	35,155	34,894	34,802	34,140
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	2,994	2,942	2,870	2,772
Direct government payments	1,595	352	360	367	374
Gross income	40,633	38,501	38,196	38,039	37,286
Production expenses	27,371	29,095	29,225	29,576	29,778
Net farm income	13,262	9,406	8,971	8,463	7,508
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	409	338	334	512
Stock carrying charge	526	504	578	653	749
Export programs (feed grains and wheat)	1,200	384	353	326	270
ASCS (Acreage diversion and CR)	1,250	--	--	--	--
Costs of feed grain and wheat programs	2,479	1,297	1,269	1,313	1,531
Other government cost	4,573	4,522	4,559	4,597	4,664
Total government cost	7,052	5,819	5,828	5,910	6,195
Consumer retail food outlay	58,900	58,800	59,100	59,700	59,700
Total National outlay for food and agriculture	42,972	40,974	40,722	40,712	40,335

Goverment costs would be increased under U_4 (as compared to U_1, U_2 or U_3) because the Conservation Reserve acreage would be returned to production. The Conservation Reserve program is more efficient for restricting market supplies to specified utilization levels than a grain storage program. One dollar of government expenditure for purchasing excess production essentially removes one dollar of product from the market. But one dollar spent on a program such as the Conservation Reserve at current acreage levels is expected to remove roughly $2 in value of production. (In the Appendix we illustrate that even more extensive Conservation Reserve or land withdrawal programs are likely to have an efficiency greater than 1. An efficiency of 1 means a dollar of production removed per dollar spent on the program.) Commodity storage operations that raise stocks above levels necessary for defense and other emergency needs are very costly. Hence, more efficient (less costly) programs are available for reducing marketings and maintaining prices. Programs which are more efficient are discussed in more detail in following sections.

Net farm income is projected to decline to $7.5 billion by 1967 under U_4 (table 12). The decline in income would be only slightly less than for U_3 (table 10). The smaller income under U_3 would be due to the greater rise in production expenses and the smaller government payments to farmers. The decline in total national outlay of food and agriculture (last line of table 12) would be about the same for the three alternatives already analyzed. In terms of this criterion, the four unrestricted production alternatives are highly comparable. Also, all four alternatives have about the same impact on net farm income, with declines ranging only from $5.7 to $5.8 billion from 1963 to 1967. Alternatives U_1 and U_2 would allow total government costs to decline by $1.2 billion between 1963 and 1967, while U_4 would allow a decline of only $.9 billion.

DIRECT PAYMENT PROGRAMS

Theoretically and under certain rigid conditions free markets and un-restricted production can result in a maximum aggregate surplus for consumer's and producer's surplus. As a policy alternative, however, this approach, in the belief of many, inequitably distributes gains among consumers and farm producers. Consumers may gain in utility and real income while farmers sacrifice in income. A program which might provide consumers free markets while safeguarding the income position of farmers is direct payments. Also direct payments can require a smaller administrative structure and cost than production control alternatives. Payments made directly to farmers will, of course, encourage greater output if they are based on production.[25/] Under these conditions, payments also will become large as farmers increase output and a subsidy must be paid on a larger supply. Some persons may prefer production controls with higher income attained through increased market prices, since the source of the subsidy or income gain is then less obvious.

Past farm programs have contained elements of direct payments, but major programs have not included direct payments without production controls. Evidently it has been difficult to divorce subsidies from output. Since supply is responsive to higher prices, the direct payments have thus necessitated production controls.

Numerous modification of direct payment plans have been proposed, and some estimates of their costs have been made. Brannan proposed a combination of direct payments and purchase agreements, with an upper limit on compensa-tion.[26/] Mehren estimated the annual treasury cost of these direct payments at $5 to $6 billion without marketing quotas.[27/] The cost for 1949 was estimated at $3 billion. Brandow estimated that a direct payment program would cost $5 billion to raise 1961 net farm income to the 1959 level.[28/] This estimate did

25/   Payments are assumed not to be tied directly to production but are on a
     lump-sum basis. For example, see Heady, Earl O., Agricultural Policy
     Under Economic Development. Iowa State University Press. Ames, Iowa,
     1962. pp. 408-436.

26/   Brannan, Charles, Joint Hearings of the House and Senate Committee on
     Agriculture. U.S. House of Representatives, Hearings on the General Farm
     Program. April 7, 1949. pp. 137-156.

27/   Taken from article by Black, John D., Policy for Commercial Agriculture.
     Joint Economic Committee. 85th Congress, 1st Session, U.S. Government
     Printing Office, Washington, D. C. 1957. pp. 658.

28/   Brandow, George E. "Direct Payments Without Production Controls."
     Economic Policies for Agriculture in the 1960's. Joint Economic
     Committee. 86th Congress, 2nd Session. Washington, 1960. pp. 65-74.

not include production controls. Accordingly, with the greater output expected, direct payment costs would rise to $5.5 billion by 1965. Brandow also proposed a direct payment program with payments only on a portion of farm output as a means of dampening the production response and of limiting treasury costs. [29/] Direct payments would be made on only 75 percent of base period marketings. The Committee for Economic Development proposed a "diminishing balance" method of direct payments independent of production, to be terminated in five years. [30/] This plan was recommended to aid adjustment in agriculture and not to serve as a continuous basis for supporting farm income. Swerling proposed a direct payment program, attached to the person, to support income to the level of $4,800 independently of production or retention of farming operations. [31/] Both government and individuals would pay premium payments on a matching basis for the program, which would be aimed at supporting income during periods of depressed income in a manner paralleling Social Security payments.

The feed grain program in effect since 1961 includes a modified form of direct payments. In general it includes compensatory payments to farmers as a means of obtaining production control. The compensatory payments serve directly for this purpose rather than being paid to all producers as a direct means of supporting income (although they obviously affect the income of the participating farmer who receives them and indirectly support income of other farmers in their effect on output and prices). Some analyses have been made of these programs. Kutish compared the 1961 feed grain program, which includes compensatory payments, with the 1959-60 type of program (prices at 65 percent of parity and no production controls.) [32/] His estimates suggest a reduction of surplus stocks of 26.1 million tons by October 1, 1962, as compared to a 1959-60 type of program. The 1959-60 program, according to Kutish's estimates, would have had a treasury cost of $1.3 billion--as compared to $.8 billion for the 1961 feed grain program. [33/] Net farm income was estimated at a lower level for the 1959-60 program than for the feed grain program actually in effect. [34/] The USDA also compared costs of the

29/   Brandow, George E., "A Modified Compensatory Price Program for Agriculture." Journal of Farm Economics, Vol. 37. pp. 716-730.

30/   Committee for Economic Development. An Adaptive Program for Agriculture. New York, 1962.

31/   Swerling, Boris, "Positive Policies for American Agriculture," in Center for Agricultural and Economic Adjustment, pp. 310-322, Goals and Values in Agricultural Policy, Iowa State University Press, Ames, 1961.

32/   Kutish, Francis A., Analysis of 1961 Feed Grain Program, (AAC-133, Mimeo), Center for Agricultural and Economic Adjustment, Iowa State University, Ames, July 1962. For an earlier study of compensatory payment plans see Hathaway, Dale, Improved Production Control for Basic Commodities-- Voluntary Land Retirement for Feed Grain Acreages, pp. 33-48, in U.S. Congress, Joint Economic Committee, 86th Congress, 2nd Session, U.S. Gov't. Printing Office, Washington 25, D.C., 1960.

33/   These estimates are based on a recovery value of $.53 per bushel on accumulated stocks under the 1959-60 type of program. If recovery value were zero, the cost of the 1959-60 program would increase to $1.6 billion.

34/   Kutish estimated that hog prices would be $2.00 to $2.50/cwt. lower and cattle prices $.75/cwt. lower. Reduction in income from livestock was estimated at $.5 billion.

1960 and 1961 type programs for feed grains for the years 1961 and 1963. [35]/ Based on average corn prices of $.98 and $1.07 per bushel under the respective 1960 and 1961 type programs, the government costs for the year 1961 under either the compensatory-control program or the "no-control" program was estimated at $1.3 billion. By 1963, the 1960 "no-control" program was projected to involve larger annual federal costs, $1.4 billion versus $1.2 billion for the 1961 type emergency feed grain program. The government costs for the 1960 type wheat program (allotments but no diverted acres) or continuation of the 1962 program were projected to be 1.5 and 1.2 billion dollars respectively for 1963. For either program, the wheat price would be supported at approximately $1.80 per bushel and gross farm income from wheat would be about the same. [36]/

Projected Effects of Direct Payment Programs, 1963-67

We now turn to projections for the direct payment alternatives analyzed in this study. Two types of direct payment programs are examined: (a) direct payments without production controls as reflected in alternatives D_1 through D_4 below and (b) compensatory payment plans of the 1963 type where direct payments are used with production controls, as reflected in alternative D_5 through D_7 below. The goal of the first four direct payment programs is net farm income at some designated level. Under D_5 through D_7, the goal of feed grain prices at least as high as during the past five year average is assumed. Export subsidies are assumed to continue for all direct payment programs. The assumptions of individual alternatives are summarized below:

D_1: Current program assumed to remain through 1963; all production controls on feed grains and wheat terminated in 1964; Conservation Reserve contracts not renewed as they expire. Assumptions are the same as for U_1 (storage of excess production of grains to achieve orderly marketing, no supply response, etc.) except that a net farm income goal of $13 billion would be achieved by direct government payments.

D_2: Same assumptions as U_2 (an aggregate supply response for feed grains and wheat, storage of excess supplies of grains to achieve orderly marketing) but government payments would maintain net farm income at $13 billion.

D_3: Same program as D_1, except that government payments would maintain per capita net farm incomes at the estimated 1962 level.

35/ USDA, Unpublished data on Feed grain and wheat programs from the Office of the Secretary of Agriculture, (Mimeo), Washington, D. C., May 1962.
36/ Wheat output and hence gross market receipts from wheat would be greater under the 1960 type program, but direct payments for diverted acres under the 1962 type program would bring all returns to comparable levels for the two programs, according to the USDA.

D_4: Same program as D_1 , except that payments would be based on the average net income of farmers from farming over the past three years.

D_5: Continuation of the current compensatory payment type program through 1967 with termination of Conservation Reserve contracts as they expire; prices maintained at 1957-61 level until stocks are reduced to a minimum level of 45 million tons.

D_6: Continuation of 1963 type compensatory payment program through 1967, but with a constant 26 million acre Conservation Reserve. The goal would be to hold prices at level of 1957-61 average for feed grains, wheat and livestock until stocks are reduced to 45 million tons.

D_7: Same as D_6, except that in 1966 and 1967, acreage diversion program to restrict production relaxed to balance output and utilization at 1957-61 average prices (see table 15 for prices).

Direct Payments Without Production Control

The estimated government costs of direct payments to maintain net farm income at 1963 levels without production controls on feed grains and wheat are summarized in table 13. The assumption of no aggregate supply response under D_1 is realistic since the payments would offset the effects of lower market prices. D_1 is based on the assumption that government production controls on feed grain and wheat would be removed. Consumer food costs could be expected to be at the level indicated for U_1, table 6. Hence, the transfer of income for D_1 would be from the treasury to farmers (taxpayers to farmers). Direct payments would total over $5 billion by 1967 to maintain net farm income at the current level of $13 billion. Under D_1, and D_2, per capita net farm income actually would rise with a further decline in the farm population. However, the high treasury cost might well cause this program to be unacceptable to the taxpaying public.

Alternative D_2 is included to examine possible savings in government costs through a direct payment program which retains some incentive in supply response and consumer preference. It supposes that the aggregate output decreasing effect of lower prices assumed for U_2 (table 8) can be allowed to operate. However, the savings are slight according to the results for D_2 in table 13, and this program alternative has about the same limitations as D_1.

Alternative D_3 makes possible a farm policy objective of maintaining per capita farm income rather than aggregate farm income. Extending recent data, one projects a farm population average outmigration of two percent per year for the 1964-67 period under alternative D_3. This projection and the condition of stable per capita income require a total farm income of $12 billion in 1967. Direct payments of $4.4 billion would be necessary to maintain the constant per capita farm income in 1967.

Table 13. Estimated direct government payments to maintain farm income under selected assumptions.

Program		1963	1964	1965	1966	1967
			(Million dollars)			
D_1 [a/]	Net farm income	13,262	9,600	9,145	8,568	7,541
	Direct payment	--	3,400	3,855	4,432	5,459
	Total farm income	13,262	13,000	13,000	13,000	13,000
D_2 [b/]	Net farm income	13,262	9,678	9,155	8,593	7,588
	Direct payment	--	3,322	3,845	4,407	5,412
	Total farm income	13,262	13,000	13,000	13,000	13,000
D_3 [c/]	Net farm income	13,262	9,600	9,145	8,568	7,541
	Direct payment	--	3,140	3,340	3,667	4,449
	Total farm income	13,262	12,740	12,485	12,235	11,990
D_4 [d/]	Net farm income	13,262	9,600	9,145	8,568	7,541
	Direct payment	--	2,898	3,788	3,299	3,041
	Total farm income	13,262	12,498	12,933	11,867	10,582

a/ See table 6, program U_1, for estimate of net income. The net income includes some past forms of direct payments such as under the Wool Act, Conservation Reserve and ACP.

b/ See table 8, program U_2, for net income. D_2 provides for an aggregate supply response.

c/ Direct payments needed to maintain the 1963 per capita income, assuming out-migration at the annual rate of 2 percent. See footnote a/ for net income source.

d/ Direct payments necessary to maintain net farm income at the past three year average with unrestricted program U_1.

Alternative D_4, use of direct payments to maintain net farm income at the level of the past three years, would ease farm adjustment costs but encourage a gradual shift to equilibrium conditions. Direct payments totaling approximately $3 billion are projected for each year. However, after 1967 these payments would decline and total farm income, including direct payments, would fall to the equilibium level of approximately $7.5 billion indicated for U_2. Alternative D_4 thus would give income protection only for a few years.

The chief limiations of direct payment alternatives D_1 to D_4 are apparent: their treasury costs are extremely high. Total government costs would include not only the direct payments in table 13, but also about $6 billion for other phases of the farm program listed under U_1, table 6. Program costs thus could total around $10 billion annually.

Direct Payments with Production Controls

The 1961 emergency feed grain program and the 1962 and 1963 programs for feed grains and wheat have employed compensatory or direct government payments as a means of restricting output. Implications of continuing the 1963 compensatory payment program to 1967 are illustrated by alternatives D_5 to D_7.

Before examining projections for these alternatives, we review briefly the main features of the 1963 type programs.

For purposes of analyzing this type of program, we use the following conditions for wheat: The national wheat allotment is 55 million acres. Producers who do not exceed their base acreage are eligible for price supports at a national average rate of $1.82 per bushel. Similar to the 1962 program, the 1963 wheat program provides for a voluntary diversion program to producers who divert at least 20 percent of their wheat allotment to conservation uses. Participants in the diversion program are eligible for payments equal to 50 percent of the value of normal production on the diverted acreage and for payment-in-kind at the rate of $.18 per bushel on the normal wheat production. Hence, those who voluntarily divert 20 percent to 50 percent (the maximum diversion for any farm is 50 percent of allotment) receive loan and payment-in-kind supports totaling $2.00 per bushel.

The 1963 feed grain program is as follows: To be eligible for diversion payments, price supports and price support loans, feed grain producers must divert at least 20 percent of their feed grain base acreage (the base acreage is that planted to feed grains in the years 1959-60) to soil conservation uses. Corn, grain sorghum and barley are interchangeable within the base, and the maximum diversion is the larger of (a) 40 percent of the grain base, or (b) 25 acres. The total national average support rate is $1.20 per bushel ($1.02 price support plus $.18 payment-in-kind) on corn, $1.91 per cwt. on grain sorghum ($1.62 price support plus $.29 payment-in-kind) and $.93 per bushel on barley ($.79 price support and $.14 payment-in-kind). 37/

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37/   Payment-in-kind is based on the 1959-60 average yield multiplied by acres planted for harvest multiplied by crop rate ($.18 per bushel for corn). The payment-in-kind certificates can be redeemed for cash or grain. For those who meet requirements for participation, the entire 1963 crop, not just normal production as in 1961 and 1962, is eligible for loans and purchase agreements. Diversion payment on the first 20 percent diverted from feed grains is 20 percent of the country support rate multiplied by acres and the 1959-60 average yield. On acres above the minimum 20 percent diversion, payments are 50 percent of the support rate ($1.20 for corn) multiplied by acreage and 1959-60 average yield. The estimated acreage, production, income and costs for the 1963 programs are similar to comparable data for the 1961 and 1962 programs. The analysis does not reflect some of the late revisions of the 1963 programs; hence, we refer to the program as the 1963 "type."

The 1963 Type Program with Termination of Conservation
Reserve Under D_5

Alternative D_5 examines compensatory payments under termination of Conservation Reserve contracts as they expire. Table 14 includes the projected acreage yields and production of crops under D_5. Table 15 includes the estimated prices of this alternative associated with the quantity of land retired under the 1963 program. Table 16 illustrates the corresponding feed balance. Table 17 summarizes the projected farm income and expenses, government costs and consumer outlays under the D_5 alternative.

Acreage of feed grains is projected to increase slightly while wheat acreage is expected to decrease slightly from 1962 to 1963 (table 14). Despite the upward trend in corn yields, the 1962 corn yield, 55.3 bushels per acre, is not projected to be surpassed until 1967. The 1960 wheat yield, 24.7 bushels per acre, is also predicted to be reached only by 1966. Prices (table 15) are projected to remain at stable levels until stocks are reduced to 45 million tons in 1966. Feed grain prices would increase in response to a smaller supply and lower utilization in 1966, but the effect of less feed use would not be reflected in livestock prices until 1967.

Stocks of feed grains and wheat (table 16) would be "regulated" to amounts consistent with maintaining average prices during 1963-65 (table 15). Stocks of feed grain and wheat would be depleted at a rapid pace as indicated in table 16. (With unfavorable weather and lower yields, carry-over could decline even more rapidly.) While the Conservation Reserve program is assumed to phase out as contracts expire, current programs for dairy, school lunch, exports, etc., are expected to continue as suggested in the total government costs of table 17.

Utilization would not increase rapidly under alternative D_5 (table 16) because: (a) exports of wheat and feed grains are projected to increase at a slower rate than in recent years, (b) feed consumption rates per unit of livestock production are expected to decline slightly from current high levels and (c) income elasticities of demand for food are low, thus restraining the expansion in livestock production and feed use. [38]

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[38] If the Conservation Reserve contracts were maintained up to 30 million acres, production and stock accumulation would be reduced up to .5 million tons for each one million acres in contracts. For example, if the CR acreage were 26 million instead of 18.5 million acres in 1964, production would be reduced 3.75 million tons below the estimate in table 16. Stocks also would be depleted more rapidly. Wheat production is not given in table 16. Excess wheat is widely used for livestock production only when wheat production exceeds nonfeed utilization (about 1.2 billion bushels). However, there is a "normal" use of wheat for feed in all years of about 1.2-1.4 million tons.

Table 14. Planted acreages, yields and production of designated crops under the 1963 type feed grain and wheat programs extended to 1967 (D₅)[a].

	Planted Acreage						
	Actual			Estimated			
Item	1960	1961	1962	1963	1964	1965	1966	1967
	(Million Acres)							
Corn	81.7	66.8	66.0	66.9	67.3	67.5	67.5	67.6
Oats	31.5	32.5	30.2	30.0	30.3	30.5	30.6	30.6
Barley	15.6	15.8	14.7	14.4	14.6	14.6	14.6	14.7
Grain Sorghum	19.6	14.3	15.0	14.6	15.0	15.2	15.2	15.3
Wheat	54.9	55.6	49.5	48.0	48.0	48.0	48.0	48.0
Other[b]	41.6	45.9	46.5	46.7	46.9	47.0	47.0	47.1
Total above	244.9	230.9	221.9	220.6	222.1	222.8	222.9	223.4
Conservation Reserve	28.7	28.3	26.0	26.0	18.5	15.0	14.5	13.0

	Yields/Planted Acre						
	Actual			Estimated			
	(Bushels)							
Corn	47.8	54.3	55.3	53.0	53.1	53.9	54.8	55.8
Oats	36.6	31.1	34.2	34.5	34.6	34.7	34.8	34.9
Barley	27.6	25.0	29.2	28.2	28.5	28.8	29.2	29.5
Grain Sorghum	31.6	33.6	33.9	31.0	32.0	33.2	34.3	35.4
Wheat	24.7	22.2	22.0	23.7	24.0	24.4	24.7	25.1

	Production						
	Actual			Estimated			
	(Million Bushels)							
Corn	3,908	3,626	3,644	3,546	3,574	3,636	3,703	3,773
Oats	1,155	1,011	1,032	1,035	1,049	1,057	1,063	1,069
Barley	431	396	429	406	415	462	427	434
Grain Sorghum	620	480	509	453	480	503	521	541
Wheat	1,357	1,235	1,095	1,138	1,152	1,171	1,186	1,205

[a] Compensatory payment feed grain and wheat programs in 1963 only. Other programs including tobacco, cotton, wool and dairy programs to continue.

[b] Includes soybeans, cotton and tobacco.

[c] Conservation Reserve contracts expire as contracts mature.

Table 15. Estimated prices of feed grains, wheat, livestock and livestock products with continuation of the 1963 type program to 1967 (Program D₅).

	Feed Grain and Wheat Prices						
	Actual[a]		Estimated				
Item	1960		1961	1963	1964	1965	1966	1967
	(Dollars/Bushel)							
Corn	1.00		1.08	1.07	1.07	1.07	1.18	1.32
Oats	.60		.64	.61	.61	.61	.67	.75
Barley	.84		.98	.89	.89	.89	.97	1.10
Grain Sorghum	.83		.99	.93	.93	.93	1.02	1.14
Wheat	1.74		1.83	1.93	1.93	1.93	1.93	1.93

	Livestock Prices						
	Actual		Estimated				
	(Dollars/Hundredweight)							
Cattle and calves	20.70		20.30	20.10	20.10	20.10	20.10	21.70
Hogs	15.30		16.60	15.90	17.20	17.20	17.20	18.50
Sheep	15.60		13.80	16.20	15.80	15.80	15.80	17.20
Chickens	16.30		13.40	15.00	14.40	14.40	14.40	15.70
Turkeys	25.40		18.90	23.70	23.50	23.50	23.50	25.20
Eggs (Cents/Dozen)	36.0		35.4	36.3	36.3	36.3	36.3	39.2
Milk	4.21		4.22	4.20	4.19	4.19	4.19	4.20

[a] Prices unavailable for 1962 when manuscript was prepared.

Table 16.　Feed concentrate balance, with 1963 type feed grain and wheat programs to 1967 with Conservation Reserve contrasts terminated as they mature (Program D₅).

Crop Year	Actual			Estimated				
	1960	1961	1962	1963	1964	1965	1966	1967
				(Million Tons)				
SUPPLY								
Stocks beginning of year[a]	114.0	126.9	110.9	97.0	79.4	64.7	50.6	45.0
Production of feed grains	155.6	140.6	143.1	138.2	141.4	143.3	145.8	148.6
Wheat-rye for feed	1.7	1.7	1.7	1.9	1.9	1.9	2.1	2.7
Wheat stocks change	2.7	-3.8	-3.0	-1.2	-.8	-.2	b	b
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-product feeds fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Total available	302.2	294.7	282.4	266.4	252.7	240.9	230.3	228.6
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	128.3	129.7	128.3	128.3
By-product feeds fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Feed grain exports	12.2	17.6	15.5	15.6	15.8	16.2	11.9	9.5
Feed grain for nonfeed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	188.0	190.3	185.3	183.6
Stock at end of year	126.9	110.9	97.0	79.4	64.7	50.6	45.0	45.0

[a]　Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[b]　Assuming wheat production enters feed markets if greater than nonfeed utilization, wheat stock changes included with all stocks after 1965.

Table 17.　Estimated farm expenses and income, government cost and consumer outlay for food with continuation of 1963 type feed grain and wheat programs to 1967 (Program D₅)[a]

	1963	1964	1965	1966	1967
	(Million dollars)				
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	36,461	37,512	37,826	38,734
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	3,010	2,980	2,950	2,900
Direct government payments	1,595	1,516	1,485	1,490	1,487
Gross income	40,633	40,987	41,977	42,226	43,121
Production expenses	27,371	27,856	28,423	28,814	29,296
Net farm income	13,262	13,131	13,554	13,452	13,825
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost[b]	-497	-411	-384	-144	-51
Stock carrying charge	526	414	313	244	224
Export programs (feed grains and wheat)	1,200	1,200	1,200	1,200	1,200
ASCS (Acreage diversion and CR)	1,250	1,164	1,125	1,123	1,113
Costs of feed grain and wheat programs	2,479	2,367	2,254	2,423	2,486
Other government cost[c]	4,573	4,582	4,619	4,657	4,724
Total government cost	7,052	6,949	6,873	7,080	7,210
Consumer retail food outlay	58,900	59,700	61,100	62,200	63,500
Total National outlay for food and agriculture	43,040	43,410	44,385	44,906	46,046

[a]　See table 6 for footnotes.

[b]　Seventy percent of market price recovery value on CCC stock sales.

[c]　Includes 60 million dollar annual administration cost of the program

Alternative D_5 would maintain net farm income above \$13 billion (table 17). Income would fall slightly in 1964 due to increased production costs and reduced direct government payments connected with lowering the Conservation Reserve to 18.5 million acres. Increased production expenses over the period would be offset by increased gross receipts. Net income thus would remain fairly stable over the entire period. Stabilization of stocks of 45 million tons is projected to reduce feeding in 1966 and 1967. However, because of the lag between feeding and livestock sales, the influence of higher prices on net farm income would not be sizeable until 1967. With D_5 continued, net income and program costs would continue to rise after 1967.

Government costs of acreage diversion or output control would be approximately \$1 billion per year for feed grains and wheat under alternative D_5. These high costs would be partially offset by savings through liquidation of excess stocks and by a reduction in carrying charges for surpluses. The total annual government costs, however, would be more than \$1 billion greater with the 1963 type program (table 17), than with the unrestricted program U_2 (table 8). But the projected net farm income for 1967 is \$6.2 billion higher under D_5 than under U_2.

The projected retail cost of food in 1967 is nearly \$4 billion greater for D_5 than for the counterpart unrestricted production alternative U_2. The total national outlay for food and agriculture shown on the last line of table 17 for D_5 is over \$6 billion greater than for U_2 (table 8) in 1967. In other words, in comparison with the unrestricted production alternative U_2, increased public costs in government payments and consumer expenditures for food at the farm level under D_5 (the 1963 type program) are approximately equal to the increase in farm income attained. Increased farm income comes through higher food outlays and/or treasury costs.

Maintenance of the Conservation Reserve Under Alternative D_6

Program D_6 is similar to D_5 but provides for a Conservation Reserve held at 26 million acres through 1967. Stocks of feed grain and wheat would be reduced to 45 million tons by the end of 1965 and grain utilized by livestock and in exports subsequently reduced (table 18). Depletion of feed grain and wheat stocks would hold prices to the 1963 levels indicated in table 19 until the minimum 45 million ton stock level was reached in 1965. Livestock prices would change little until 1967 because of the delayed response to the lower feed supply. Between 1965 and 1967, cattle price is projected to increase from \$20.10 to \$22.30/cwt; hog price from \$17.20 to \$18.90/cwt; and corn price from \$1.07 (1964) to

Table 18. Feed concentrate balance, with 1963 type feed grain and wheat programs with Conservation Reserve at 26 million acres to 1967 (Program D_6).

	Actual			Estimated				
Crop Year	1960	1961	1962	1963	1964	1965	1966	1967
			(Million Tons)					
SUPPLY								
Stocks beginning of year[a]	114.0	126.9	110.9	97.0	79.4	60.9	45.0	45.0
Production of feed grains	155.6	140.6	143.1	138.2	138.0	138.8	140.2	142.9
Wheat-rye for feed	1.7	1.7	1.7	1.9	1.9	1.9	1.9	1.9
Wheat stocks change	2.7	-3.8	-3.0	-1.2	-1.2	-1.2	b	b
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-product feeds fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Total available	302.2	294.7	282.4	266.4	248.9	231.6	218.9	222.1
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	128.3	129.7	122.5	124.0
By-product feeds fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Feed grain exports	12.2	17.6	15.5	15.6	15.8	12.5	6.3	7.3
Feed grain for nonfeed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	188.0	186.6	173.9	177.1
Stock at end of year	126.9	110.9	97.0	79.4	60.9	45.0	45.0	45.0

[a] Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[b] Assuming wheat product enters feed markets if greater than nonfeed utilization, wheat stock changes included with all stocks after 1965.

Table 19. Estimated prices of feed grains, wheat, livestock and livestock products with continuation of the 1963 type program continued and Conservation Reserve held at 26 million acres through 1967 (Program D_6).

	Feed Grain and Wheat Prices						
	Actual[a]		Estimated				
Item	1960	1961	1963	1964	1965	1966	1967
			(Dollars/Bushel)				
Corn	1.00	1.08	1.07	1.07	1.16	1.34	1.49
Oats	.60	.64	.61	.61	.68	.79	.88
Barley	.84	.98	.89	.89	.96	1.11	1.24
Grain Sorghum	.83	.99	.93	.93	1.00	1.16	1.29
Wheat	1.74	1.83	1.93	1.93	1.93	1.93	1.93

	Livestock Prices						
	Actual		Estimated				
			(Dollars/Hundredweight)				
Cattle and calves	20.70	20.30	20.10	20.10	20.10	20.50	22.30
Hogs	15.30	16.60	15.90	17.20	17.20	17.70	18.90
Sheep	15.60	13.80	16.20	15.80	15.80	16.80	17.30
Chickens	16.30	13.40	15.00	14.40	14.40	14.50	16.50
Turkeys	25.40	18.90	23.70	23.50	23.50	24.00	25.40
Eggs (Cents/Dozen)	36.0	35.4	36.3	36.3	36.3	39.0	44.3
Milk	4.21	4.22	4.20	4.19	4.19	4.19	4.21

[a] Prices unavailable for 1962 when manuscript was prepared.

$1.49/bu. in 1967 (table 19). 39/

Retention of the Conservation Reserve under D_6 would have these effects by 1967 on income and cost figures as summarized in table 20: net farm income would increase by nearly $1 billion over D_5 because of the direct government payments, somewhat lower production costs on fewer acres, and some farm price increase; total government costs would be about $.1 billion greater under D_6 than under D_5. While consumer outlay for food would be the same under the two alternatives, the total national outlay for food and agriculture (the last line of tables 17 and 20) would be over $1 billion greater with the Conservation Reserve maintained under D_6 than when allowed to expire under D_5.

Maintenance of Prices and Income Under Alternative D_7

The 1963 type alternative, under the conditions outlined above, could not be continued indefinitely because stocks would be depleted below the 45 million ton level considered necessary for national emergencies or feed utilization would be restricted until unacceptably high food prices to consumers would result. Consequently, these alternatives would need to be revised and made less restrictive on production. Accordingly, a modified version of D_6 is provided in alternative D_7. The latter would allow stocks of feed grains and wheat to be maintained at 45 million tons. By allowing production to expand, it would maintain the 1963 level of prices indicated in table 15 to 1967. The D_7 alternative would allow production of feed grains in 1965 to exceed that of D_6 by 20 million tons. The income and cost results projected under D_7 are summarized in table 21 for the years 1966 and 1967 (estimates for 1963-65 are the same as under D_6).

In contrast to alternative D_5 and D_6, alternative D_7 would maintain income at about the 1962 level through 1966 and 1967. Similarly, D_7 would cause (a) total government costs and (b) total national outlay for food and agriculture to

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39/ Higher grain prices restrict commercial exports. Even with sizeable export subsidies, total exports are projected to fall appreciably under D_6. Before stocks would be depleted under this alternative, cash receipts would be slightly less than with program D_5 because of the production restraint of the added Conservation Reserve (table 20). But direct federal payments are increased and production costs are reduced in D_6; hence, net income is slightly higher from 1964 to 1966 in table 20 than in table 17. Direct payments would be higher under D_6 because higher prices raise the "rent" needed to divert land from production. Net farm income would increase in 1967 under D_6 because of lower feed utilization and livestock sales coupled with an inelastic demand. Government costs under D_6 would increase to $7.4 billion in 1967, and probably would be even higher after 1967. Consequently, D_6 would become a very costly program after stocks were stabilized.

Table 20. Estimated farm expenses and income, government costs and consumed outlays for food with continuation of 1963-type feed grain and wheat programs, 26 million acre Conservation Reserve to 1967 (Program D_6)[a].

	1963	1964	1965	1966	1967
			(Million dollars)		
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	36,311	37,292	38,436	39,795
Non-money income (products consumed in home, rental on dwellings, etc.)	3,050	3,010	2,980	2,950	2,900
Direct government payments	1,595	1,606	1,617	1,628	1,643
Gross income	40,633	40,927	41,889	43,014	44,338
Production expenses	27,371	27,733	28,255	28,590	29,639
Net farm income	13,262	13,194	13,634	14,424	14,699
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	-521	-451	0	0
Stock carrying charge	526	400	280	224	224
Export programs (feed grains and wheat)	1,200	1,200	1,200	1,200	1,200
ASCS (Acreage diversion and CR)	1,250	1,254	1,257	1,261	1,269
Costs of feed grain and wheat programs	2,479	2,333	2,286	2,685	2,693
Other government cost	4,573	4,582	4,619	4,657	4,724
Total government cost	7,052	6,916	6,905	7,342	7,417
Consumer retail food outlay	58,900	59,700	61,100	62,200	63,500
Total National outlay for food and agriculture	43,040	43,227	44,197	45,778	47,212

a See tables 6 and 17 for footnotes.

Table 21. Estimated income and cost figures for Alternative D_7[a].

	1966	1967
FARM INCOME		
Cash receipts from farm marketings	37,889	38,381
Direct government payments	975	1,024
Net farm income[b]	12,752	12,831
PUBLIC COSTS		
Government costs		
CCC (feed grains and wheat)		
Net acquisition costs	0	0
Stock carrying charge	224	224
Export programs (feed grains and wheat)	1,200	1,200
ASCS	608	650
Total government cost[c]	6,674	6,783
Consumer retail food outlay	62,200	63,800
Total National outlay for food and agriculture	44,563	45,164

a For general footnote explanations, see tables 6 and 17.
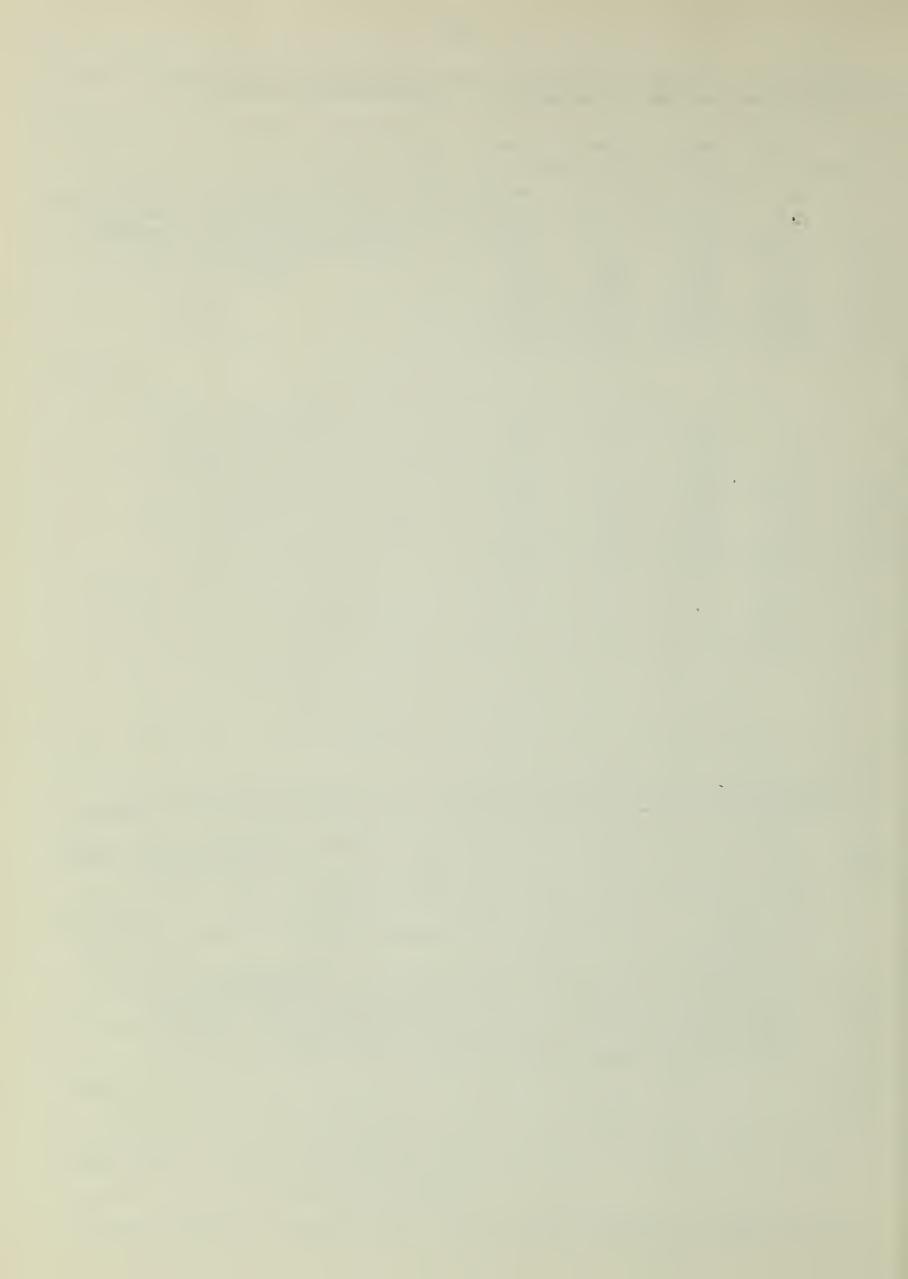
b Non-money income and expenses included as in table 6.

c Includes other government costs indicated in table 6. Also includes net acquisition costs and storage carrying costs where these are involved.

be considerably lower in 1966 and 1967 than alternatives D_5 and D_6. Thus it is a more reasonable alternative in terms of public costs.[40]/

      CCC costs would be less than one-fourth billion dollars for D_7, and ASCS costs would be lower than for D_6. The total government cost in 1967, about \$6.8 billion, would not be substantially less than under D_6 (table 20) in earlier years because sales of CCC stocks would no longer be feasible.[41]/ But compared with D_6, there would be substantial savings in 1966 and 1967 under D_7.

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[40]/ These results suggest that D_6 would be an "acceptable" program to
1965, but that modifications would be necessary thereafter if treasury
costs and stocks were to be maintained at reasonable levels. If
60 million tons of feed grains and wheat were considered to be the stock
level, alternative D_6 could be modified after 1964, a year earlier than
D_7, to give results similar to D_7 for 1965 to 1967. However, stock
carrying charges would be approximately \$100 million greater than for
the 45 million tons assumed.

[41]/ The estimates indicate that a less restrictive compensatory payment
program D_7 (after excess stocks were reduced) might not offer
sizeable government cost economies. Lower diversion costs of the
ASCS would be offset by lower revenue from CCC stock sales.

LAND RETIREMENT WITH THE CONSERVATION RESERVE

This section includes projections for land withdrawal under alternatives of the Conservation Reserve type. Estimates of costs, returns and other quantities parallel those of alternatives already discussed.

Review of Land Retirement Effects and Proposals

The 1956-58 acreage reserve program was estimated to have reduced the value of crop output by $1.70 for each dollar of rental payment.[42] The voluntary Conservation Reserve program is estimated to have been even more efficient, each dollar of rental payment reducing the value of crop production by $2.92 from 1957-60.[43] The incentives provided by the acreage retirement programs may also provide opportunities for abandoning marginal cropland that is inadequate to support farmers as farms presently are organized and managed and provide the opportunities for converting such land to recreation areas, ranchland or forests--uses having greater marginal social benefit. The voluntary aspects of the Conservation Reserve type program, coupled with its efficiency for removing excess production and other advantages, suggest that voluntary land retirement is a useful foundation for a price and income program.

Disadvantages are also apparent. First, the program may tend to encourage an inefficient resource combination, one long on capital and short on land.[44] Second, as the land retirement program increased in size and effectiveness, the "rent" or government cost would increase (see the Appendix). It also is difficult to judge accurately the land retirement necessary to achieve the desired reduction in output and increase in farm prices. A major land retirement program brings complaints from urban business interests since reduction in the number of farmers reduces banking activities and grocery, feed and fertilizer sales, and affects other income-producing aspects of community life.

Considering voluntary participation, Schnittker estimated the land acreage withdrawal and necessary costs to maintain prices near the 1959-60 level without accumulation of stocks.[45] In one program he assumed that the 1959-60 price

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42/ Christensen, Raymond P. and Aines, Ronald O., Economic Effects of Acreage Control Programs in the 1950's, U. S. Dept. of Agric. Econ. Rpt. No. 18, Washington D. C., 1962.

43/ Ibid.

44/ In some instances, a more efficient land capital combination is encouraged, because prior to the program, farmers may have been long on land and short on capital.

45/ Schnittker, John A., "Voluntary Land Retirement," pp. 21-32, in U. S. Congress, Economic Policies for Agriculture in the 1960's, Joint Economic Committee, 86th Congress, 2nd Session, U. S. Gov't. Printing Office, Washington 25, D. C., 1960. See also Schnittker, John A., "Voluntary Land Retirement," pp. 175-188, in Center for Agricultural and Economic Adjustment, Price and Income Policies, CAEA Report 7, Iowa State University, Ames, 1960.

differentials between wheat, cotton and feed grains would be maintained. Land retirement programs thus would be concentrated in the Great Plains and to some extent in the South. A 59 million acre withdrawal would be necessary to maintain cattle prices at $.17 to $.18 per pound (the actual price was $.23 in 1959), and hog prices at $.14 per pound. The program would result in corn prices of $1.00 per bushel and wheat prices of $1.75 per bushel. Net income of farm operators from farming was anticipated to be $11.4 billion under the proposed 59 million acre land retirement program--approximately the 1959 level.

In a second program in which the differential between wheat and feed grain prices need not be maintained, Schnittker estimated that a 48 million acre acreage retirement program would maintain prices and incomes at the 1959-60 level. Land withdrawal then would be concentrated more in the Corn Belt where yields are higher. While fewer acres would be required, wheat producers would have lower incomes. Net farm income would be $12.7 billion, or slightly higher than under the first program. Program costs would be about the same under each-- about $2 billion per year--but would be increasing. These proposed voluntary land retirement programs would be less costly than the actual acquisition and storage of 1959 and 1960.

Farris proposed a two-phase voluntary land retirement program.[46/] The first phase would require sufficient land retirement to deplete existing excess stocks and would require retirement of 65 to 70 million cropland acres. To reduce stocks 12 million tons per year and lower the surplus to an acceptable level by 1965, he proposed an additional retirement of 40 million acres, or a total of 112 million acres. In five to seven years, which would mark the end of Phase I, some of the 40 million acres removed from production to reduce excess stocks could again be used for crops.

The estimated cost of retiring the 70 million acres needed to balance production and utilization is $1.4 billion at a basic "rental" rate of $17 per acre. The additional 40 million acres for the second phase would require a basic rental rate of $20 per acre. The marginal cost of Phase II was estimated at $1 billion to $.81 billion. Hence, the total program cost would be $2.2 to $2.4 billion per year. Farris did not estimate farm prices and incomes resulting from the proposed land retirement, but he did refer to corn at $1.00 per bushel. Hence, prices might be somewhat near the 1962 levels.

Paulsen, et al., estimated the amount and cost of grain land retirement necessary to balance production and reduce stocks in the 1960's.[47/] Under the first assumed level of prices (corn, $1.00 per bushel; wheat, $1.15 per bushel;

46/ Farris, Paul L., An Evaluation of a Payment-in-Kind Proposal for Reducing Surplus Feed Grain Stocks, Purdue Agric. Expt. Sta. (Ec. 206, Mimeo), Lafayette, Indiana, 1960.
47/ Paulsen, Arnold, et. al., The Amount and Cost of Grain Land Retirement, Econ. Inf. 157 (Rev.), (Mimeo), Center for Agricultural and Economic Adjustment, Iowa State University, Ames, 1960.

hogs, $.13 per pound and cattle, $.17 per pound), program costs would range
from $488 to $342 million. Based on a 25 percent limit on cropland diverted
to land retirement in any one area, the required acreage diversion was
estimated to be 29 million acres at a cost of $14.70 per acre and a total
program cost of $425 million. With the limit in any one area raised to
50 percent, the required acreage to be diverted was projected to increase to
36.3 million but per acre costs to decline to $9.45 per acre and program costs
to $342 million.

The second estimate by Paulsen, et al., of acreages and cost for
voluntary land retirement assumed prices of $1.30 per bushel for corn, $1.50
per bushel for wheat, $.17 per pound for cattle and $.165 per pound for hogs.
At the 50 percent retirement level in each area, the required land retirement
was estimated to be 62.5 million acres. The cost would be $20.80 per acre
and the total program cost $1.4 billion. If the same percentage retirement
were required in all regions, the cost would be somewhat higher--$26.70
per acre and $1.5 billion in total costs.

The cost of a voluntary land retirement program also was estimated
by Bottum, et al. [48]/ Based on several approaches, the cost of land retire-
ment varied from $.40 to $.80 for each one dollar value of crop production
removed. The lowest estimated cost could be achieved by permitting alternative
uses of the Conservation Reserve land such as for grazing, or by concentrating
the land retirement in marginal areas and by allowing either whole or part
farm participation. The study estimated that the cost of shifting 80 million acres
of the poorest land from production would approximate $1 billion, or $12.50 per
acre. For a shift of 42 million acres (assuming acreage is not concentrated in
a few areas), Bottum estimated that a 3 percent reduction in acreage would be
required to reduce output by 1 percent. If one uses Bottum's coefficients and
bases his calculations on 450 million cropland acres and a current "overcapacity"
of 6 percent, he concludes that 80 million acres would need to be retired to
bring production in line with utilization--i.e., 3(.06 X 450) = 80. However,
these estimates are based on assumptions of removing less productive land. A
more realistic estimate, based on past experience with the Conservation
Reserve, is that the average land removed from production has somewhat
higher yield capabilities than envisioned in the above study.

Direct Control of Land

An alternative to land retirement schemes is land purchase, zoning or
easement on cropping rights. Direct purchase of land has the attraction of low
cost and opportunities for diversion of land to uses more in the public interest

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48/ Bottum, Carroll J., Dunbar, John O., Kohls, Richard L., Vogelsang,
    Donald L., McMurty, Gene and Mogan, Sidney E., Land Retirement and
    Farm Policy, Purdue Agric. Expt. Sta. Res. Bul. 704, Lafayette,
    Indiana, Sept., 1961.

where there exists a disassociation of private and social benefits. Heady points out that if the $8.1 billion loss on operations of the Commodity Credit Corporation from 1933 to 1960 alone had been used to purchase land, 81 million acres could have been purchased at $100 per acre.[49] Or, the $21.3 billion used for price support operation and conservation expenditures would have allowed purchase of 213 million acres at $100 per acre, or 106.5 million acres at $200 per acre. Obviously, more than enough land could have been purchased to solve the surplus capacity problem of agriculture and expenditures saved could have been applied to correct other social problems of agriculture.

The USDA examined the implications of a 60 million acre land purchase program.[50] Whether this purchase program would balance production and utilization would, of course, depend on the desired commodity prices and the productivity of land. Based on the average current value of cropland, $150 per acre, and assuming purchase of cropland only, a 60 million acre purchase program would cost $9 billion. Since the initial cost might be recovered later at resale, only interest, maintenance and taxes (assuming former taxes continue) would be included in annual cost. The resulting annual cost, $9 per acre, would imply a total program cost of $540 million per year--considerably less than the rental schemes discussed earlier.

One disadvantage of the land purchase program is the slow rate at which land would be acquired. Voluntary land sales and transfers currently total about 11 million acres. To avoid a sizeable increase in land values, only a small portion of this land could be purchased by the government. If three million acres were purchased each year, 20 years would be required to reach the desired level, 60 million acres. By that time, a new goal of perhaps 75 million acres might be necessary. Thus, for several years a land purchase program would have to be accompanied by other measures if prices and incomes were to be maintained at specified levels of recent years.

Projecting an Expanded Conservation Reserve Program to 1967

We now review estimates of farm expenses and returns, government costs and consumer food outlays based on alternatives which assume (a) expansion of the Conservation Reserve program and (b) termination of the 1963 compensatory payment program after 1963. The assumptions specific to each alternative examined are as follows:

C_1: A Conservation Reserve program to equate feed grain and wheat production and utilization at current feed grain prices ($1.07 corn

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49/ Heady, Agricultural Policy Under Economic Development, pp. 555-556.
50/ U. S. Dept. of Agric. Inf. Bul. No. 239, Washington D. C., 1961, pp. 38-40.

equivalent and a wheat price of $1.18 per bushel) ;[51/] current programs for dairy, school lunch, etc., continued; stocks held constant; the compensatory payment program and all price supports on feed grains and wheat terminated after 1963.

C_2: A 55 million acre Conservation Reserve program, reducing feed grain and wheat stocks to 45 million tons by the end of 1967; other assumptions, including the price level, as in C_1.

C_3: A 80 million acre Conservation Reserve program, reducing feed grain and wheat stocks to 45 million tons in 1966; other assumptions as in C_1.

A Conservation Reserve Program to Balance Production and Utilization Under C_1

A Conservation Reserve program to maintain prices and stocks at current levels without direct production controls would need to restrain production to nearly 157 million tons of feed grains (and wheat used for feed) in 1964 (table 22). Greater production could be permitted in later years as utilization increases, but because yields increase faster than utilization, additional restraints on production would be needed. The estimated size of a Conservation Reserve program to align production and use would range from 32 million acres in 1964 to 38 million by 1967. The required Conservation Reserve acreage is less than indicated in previous studies. Hence, it is useful to restate the assumptions on which the current estimates are based.

First, the current Conservation Reserve program, revised in the Appendix, is aimed at feed grains and wheat and is assumed to be more effective than past programs in reducing production. Each new Conservation Reserve acre is expected to decrease feed grain and wheat production by .55 tons, as compared with approximately .50 tons under the old program because the additional acres contracted are more productive.

Second, the program is based on the condition that wheat exports are maintained through export subsidies at 600 million bushels and feed grain exports at around 16 million tons per year.

Third, wheat is assumed to be priced at a level based on its feeding value in relation to feed grains. (A Conservation Reserve program to maintain the current differential between feed grain and wheat prices might require an additional 5-10 million Conservation Reserve acres.)

51/ The same prices as D_5, table 15, but with wheat priced in relation to its value as a feed grain. Without a special program for wheat, its price would be determined in the feed grain market.

Table 22.   Feed concentrate balance, with a Conservation Reserve Program to maintain stocks and prices (except wheat) at the 1963 lev·1 (Program C_1)[a].

Crop Year	Actual			Estimated				
	1960	1961	1962	1963	1964	1965	1966	1967
	(Million Tons)							
SUPPLY								
Stocks beginning of year[b]	114.0	126.9	110.9	97.0	79.4	79.0	79.0	79.0
Production of feed grains	155.6	140.6	143.1	138.2	150.7	152.8	153.5	155.7
Wheat-rye for feed	1.7	1.7	1.7	1.9	6.1	6.3	6.5	6.8
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c	c	c	c
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Total available	302.2	294.7	282.4	266.4	267.0	269.3	270.8	273.8
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	128.3	129.7	130.2	132.0
By·products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Feed grains exports	12.2	17.6	15.5	15.6	15.8	16.2	16.5	17.0
Feed grain for non-feed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	188.0	190.3	191.8	194.8
Stocks at end of year	126.9	110.9	97.0	79.4	79.0	79.0	79.0	79.0

[a] Conservation Reserve at the following level, in million acres: 26 in 1963, 32 in 1964, 33 in 1965, 37 in 1966 and 38 in 1967.   The current compensat·ry payment program is assumed for 1963, no production controls except CR from 1964 to 1967.

[b] Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[c] Assuming wheat production enters feed markets if greater than non-feed utilization; wheat stock changes included with all stocks after 1963.

Finally, the recent support programs for dairy, cotton and other commodities are assumed to continue.

The budget showing the income and cost incidence of program C_1 is presented in table 23. Increased production costs and lower direct federal payments cause net farm income to be from $1.5 billion to nearly $2.0 billion less under C_1 than under the 1963 type compensatory payment program, D_5 (table 17), which allows Conservation Reserve contracts to terminate.

Stock carrying charges would remain at $.5 billion and there would be no gains from stock sales because the program would be geared only to balance production with utilization. In 1964 and 1965 total government costs would be nearly $1 billion less than under D_6, the 1963 type program which includes a constant 26 million acre Conservation Reserve. (It is important to note that the stock depletion made possible by the 1963 type program, D_6, would reduce program costs so that by 1967 and in subsequent years the cost of the modified compensatory payment program D_7 would be nearly comparable to the cost of C_1.)

Other things equal, higher carry-overs would increase government cost of C_1 relative to D_7 in 1966 and 1967 (tables 21 and 23). But average annual costs would tend to be higher for D_7 because wheat price supports would be assumed to hold wheat price at $1.93 per bushel. Also, the Conservation Reserve is estimated to be more efficient than the compensatory payment programs in per unit cost of production control. The efficiency (value of production removed per dollar of government cost) of Conservation Reserve is considered to be 1.3 at high levels of the Conservation Reserve, and greater for lower acreage removals. (The estimated efficiency of the Conservation Reserve based on past research is discussed in the Appendix. The efficiency of the 1961 emergency feed grain program has been estimated to range from .9 to 1.2, and we use an estimate of 1.15 for computations in this study.)

A Conservation Reserve Program to Deplete Stocks to 60 Million Tons in 1967 Under C_2

Table 24 suggests that a Conservation Reserve of 55 million acres without other production controls on feed grains and wheat might be very effective in reducing production and depleting stocks. Carry-over of all stocks is projected to drop to 63 million tons by 1966 (table 24), the level sometimes proposed to be consistent with emergency needs. Consequently, a Conservation Reserve program of approximately 40 million acres[52] could be instituted in 1966 to balance production with utilization and maintain stocks

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52/ Program C_1 approaches 40 million acres, ranging from 32 to 38 million acres for 1964 to 1967.

Table 23.   Estimated farm expenses and income, government cost and consumer outlays for food with a Conservation
Reserve program to maintain stocks and prices (except wheat) at the 1963 level (Program C_1)[a].

	1963	1964	1965	1966	1967
			(Million dollars)		
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	36,016	36,648	37,013.	37,501
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	3,010	2,980	2,950	2,900
Direct government payments	1,595	838	853	940	977
Gross income	40,633	39,864	40,481	40,903	41,378
Production expenses	27,371	28,191	28,706	29,062	29,474
Net farm income	13,262	11,673	11,775	11,841	11,904
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	-11	--	--	--
Stock carrying charge	526	463	462	462	462
Export program					
(feed grains and wheat)	1,200	567	567	559	552
ASCS (Acreage diversion and CR)	1,250	486	493	573	603
Costs of feed grain and wheat programs	2,479	1,505	1,522	1,594	1,617
Other government cost [b]	4,573	4,552	4,589	4,627	4,694
Total government cost	7,052	6,057	6,111	6,221	6,311
Consumer retail food outlay	58,900	59,300	60,700	61,800	63,100
Total National outlay for food and agriculture	43,040	42,073	42,759	43,234	43,812

[a] See Table 6 for footnotes.

[b] Includes $60 million administrative cost in 1963, $30 million per year from 1964 to 1967.

Table 24.   Feed concentrate balance, with a Conservation Reserve Program raised to 55 million acres in 1967
(Program C_2)[a].

		Actual				Estimated		
Crop Year	1960	1961	1962	1963	1964	1965	1966	1967
SUPPLY								
Stocks beginning of year[b]	114.0	126.9	110.9	97.0	79.4	72.6	62.8	52.7
Production of feed grains	155.6	140.6	143.1	138.2	145.2	144.1	144.7	147.3
Wheat-rye for feed	1.7	1.7	1.7	1.9	5.2	5.2	5.2	5.4
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c	c	c	c
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Total available	302.2	294.7	282.4	266.4	260.6	253.1	244.5	237.7
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	128.3	129.7	130.2	132.0
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Feed grains exports	12.2	17.6	15.5	15.6	15.8	16.2	16.5	14.9
Feed grain for non-feed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	188.0	190.3	191.8	192.7
Stocks at end of year	126.9	110.9	97.0	79.4	72.6	62.8	52.7	45.0

[a] Conservation Reserve at the following level, in million acres: 26 in 1963, 44 in 1964, 50 in 1965 and 55 in 1966
and 1967.   The current compensatory payment program is assumed for 1963, no production control except CR from
1964 to 1967.

[b] Stocks of corn and sorghum in all positions on October 1; oats, barley and wheat on July 1.

[c] Assuming wheat stocks enter feed markets if greater than utilization, wheat stock changes included with all stocks
after 1963.

at 60 million tons. Since it would be somewhat awkward to increase the Conservation Reserve acreage immediately to 55 million acres, this level would be approached gradually. The acreages are as follows: 26 million acres in 1963, 44 million in 1964, 50 million in 1965 and 55 million in 1966 and 1967.

Net farm income is projected to be maintained at around $12 billion under C_2 (table 25). Some savings in treasury costs are afforded by opportunities to liquidate government held stocks. Even with more Conservation Reserve acres under C_2 than C_1 in 1964, total government costs would be nearly the same for the two programs. The government cost of C_2 would be held down by stock liquidation. As a consequence, government costs would be slightly lower in 1967 under C_2 (55 million acres contracted) than under C_1 (38 million acres contracted). Consumer costs would be the same under the two programs although net farm income would be slightly higher under C_2 than C_1 because of lower production costs. Thus there are obvious advantages for program C_2 over C_1. With stocks down to 45 million tons in 1967, it would be possible to release approximately 15 million acres from the program and still balance production and use-- essentially a shift from program C_2 to C_1. In addition, government costs for acreage diversion and stock carrying charges would be less with stocks reduced.

A Conservation Reserve Program of 80 Million Acres to Deplete Stocks to 45 Million Tons in 1966 Under C_3

Alternative C_3 would involve an 80 million acre withdrawal of land. Based on the type of Conservation Reserve program presented in the Appendix, a program removing 26 million acres in 1963, 56 million in 1964, 66 million in 1965, 74 million in 1966 and 80 million in 1967 would be sufficient to reduce feed grain and wheat stocks to an estimated 45 million tons by 1966 (table 26). A large Conservation Reserve program could be more effective, in terms of production removed per acre, than a small Conservation Reserve program because the small Conservation Reserve would optimally be concentrated on acreages with low productivity. As Conservation Reserve acreage is expanded, it must involve more productive land; therefore the value of production removed per dollar of government cost declines. For a large Conservation Reserve acreage, the average efficiency is estimated at 1.3 ($1.30 in value of production removed from the market for each dollar of government cost). As previously noted, the efficiency approximates 2.0 for small Conservation Reserve acreages. An average efficiency of 1.3 for all acres removed implies that as more productive land is removed at the 80 million acre level, the value of additional production purchased may be less than the additional cost of the program (i.e. an efficiency of less than 1.0).[53]

53/ At .6 tons of feed grains per acre, $39 per ton, 90 percent of the value of production removed by a CR program imputed to feed grains and an efficiency of 1.3, the average treasury cost per CR acre is $20 for our estimates. This estimate is computed on a $1.07 corn price equivalent. A restrictive program that raised prices by a given proportion above $1.07 would also cost proportionately more per acre.

Table 25. Estimated farm expenses and income, government cost and consumer outlay for food with the Conservation Reserve Program increased to 55 million acres in 1967 (Program C_2)[a].

	1963	1964	1965	1966	1967
	(Million dollars)				
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	35,841	36,496	36,832	37,390
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	3,010	2,980	2,950	2,900
Direct government payments	1,595	1,048	1,165	1,262	1,280
Gross income	40,633	39,899	40,641	41,044	41,570
Production expenses	27,371	27,921	28,358	28,655	28,853
Net farm income	13,262	11,978	12,283	12,389	12,717
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	-184	-265	-273	-208
Stock carrying charge	526	441	383	314	251
Export programs (feed grains and wheat)	1,200	567	563	559	552
ASCS (Acreage diversion and CR)	1,250	695	806	896	906
Costs of feed grain and wheat programs	2,479	1,519	1,487	1,496	1,501
Other government cost[b]	4,573	4,562	4,599	4,637	4,704
Total government cost	7,052	6,081	6,086	6,133	6,205
Consumer retail food outlay	58,900	59,300	60,700	61,800	63,100
Total National outlay for food and agriculture	43,040	41,922	42,582	42,965	43,595

[a] See table 6 for footnotes.

[b] Includes $60 million administrative cost in 1963, $40 million per year from 1964 to 1967.

Table 26. Feed Concentrate Balance with a Conservation Reserve Program Raised to 80 million acres in 1966 (Program C_3)[a].

	Actual			Estimated				
Crop Year	1960	1961	1962	1963	1964	1965	1966	1967
SUPPLY								
Stocks beginning of year[b]	114.0	126.9	110.9	97.0	79.4	66.1	48.5	45.0
Production of feed grains	155.6	140.6	143.1	138.2	140.5	137.9	137.0	137.0
Wheat-rye for feed	1.7	1.7	1.7	1.9	3.4	2.6	2.3	2.1
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c	c	c	c
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Total Available	302.2	294.7	282.4	266.4	254.1	237.8	219.6	216.4
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	128.3	128.7	123.4	119.8
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Feed grains exports	12.2	17.6	15.5	15.6	15.8	16.2	6.1	5.8
Feed grain for nonfeed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	188.0	190.3	174.6	171.4
Stocks at end of year	126.9	110.9	97.0	79.4	66.1	48.5	45.0	45.0

[a] Conservation Reserve at the following level in million acres: 26 in 1963, 56 in 1964, 66 in 1965, 74 in 1966 and 80 in 1967. The current compensatory payment program is assumed for 1963, no production control except CR for 1964 to 1967.

[b] Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[c] Assuming wheat production enters feed markets if greater than non-feed utilization, wheat stock changes included with all stocks after 1963.

Under C_3, CCC stock sales are projected to permit prices to be held at $1.07 for corn, $1.18 for wheat, $17.20 for hogs, etc. (With the exception of wheat which is priced relative to feed grain market, all prices are the same as D_5, table 15.) With stocks held at 45 million tons, feed supplies in 1966 would be insufficient to maintain the level of livestock production consistent with these prices. Prices, therefore, would increase to $1.54 for corn in 1966, $1.64 for corn in 1967 with other feed grains and wheat prices increased accordingly. Exports would decline while grain feeding would be reduced 8.2 million tons below the 1963 level (table 26).

Cattle prices would rise in 1967 and gross farm receipts for C_3 (table 27) would be $2.3 billion greater than for C_1 in the same year.[54] The savings in production expenses made possible by a lower output and the sharp rise in direct payments would cause net farm income to be $16.3 billion for C_3 in 1967. Higher prices (and thus greater payment levels) would increase government costs under C_3 to $7.7 billion in 1967, a gain of $1.3 billion over 1966. Similarly, the consumer retail outlay for food is projected to increase by $5.3 billion between 1963 and 1967, while the total national outlay for food and agriculture is projected to increase by $4.5 billion. These large increases might cause an alternative such as C_3 to be publicly unacceptable. Also, it is unlikely that farmers themselves have in mind a program, such as C_3, which would increase net farm income by $3.1 billion between 1963 and 1967. (The current interest is more nearly in maintaining income.)

Conservation Reserve program C_3 and compensatory payment program D_6 accomplish somewhat the same objective. In general, government costs are lower for C_3 but net farm income is slightly higher for D_6. The efficiency of either program, measured by government costs, would depend on the conditions used.[55] Alternatives C_1 to C_3 would be based on a wheat price of $1.18 (i.e. the feed price of wheat). Raising the wheat price to $1.93 per bushel would require the Conservation Reserve program to concentrate more in the Great Plains. Since yields are lower in these areas, more land would have to be removed from production than indicated in alternatives C_1 to C_3. To accomplish the same objectives with wheat at $1.93 per bushel, the Conservation Reserve program would need to include an estimated 5-10 million

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54/ Under C_3, livestock prices for 1963 to 1966 remain at the 1963 level (table 15). In 1967, livestock and livestock product prices are: cattle $22.00/cwt, hogs $18.40/cwt, sheep $17.70/cwt, chickens 16.4 cents/lb., turkeys 26.0 cents/lb., eggs 42.4 cents/doz., and milk $4.20/cwt.

55/ We assume that voluntary diversions under D_6 have an efficiency factor of 1.15, i.e. $1 billion spent on the program decreases the value (constant dollar) of farm production $1.15 billion. The efficiency of the CR is assumed to be about 1.3 at the 80 million acre level. These estimates are based on historical performance, research and theory of production payments, and may not be accurate enough to detect small differences in efficiencies.

additional acres. Farm income would be higher, along with Conservation
Reserve program costs and export subsidies. There might be resistance to
heavy concentration of Conservation Reserve programs in the Great Plains,
and a more widely acceptable alternative might be a special program maintain-
ing a higher wheat price. A special allotment program for wheat, as in the
past, could be used with the Conservation Reserve program to hold the normal
wheat-feed grain price differential.

Table 27. Estimated farm expenses and income, government cost and consumer outlay for food with an 80 million acre Conservation Reserve, depleting feed grain and wheat stocks to 45 million tons in 1967 (Program C_3)[a].

	1963	1964	1965	1966	1967
	(Million dollars)				
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	35,694	36,304	38,213	39,834
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	3,010	2,980	2,950	2,930
Direct government payments	1,595	1,245	1,536	1,502	2,412
Gross income	40,633	39,949	40,820	42,665	45,176
Production expenses	27,371	27,787	28,162	28,320	28,853
Net farm income	13,262	12,162	12,658	14,345	16,323
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	-359	-502	-68	0
Stock carrying charge	526	418	307	233	224
Export programs (feed grains and wheat)	1,200	567	563	513	738
ASCS (Acreage diversion and CR)	1,250	893	1,176	1,135	2,038
Costs of feed grain and wheat programs	2,479	1,519	1,544	1,813	3,000
Other government cost[b]	4,573	4,572	4,609	4,647	4,714
Total government cost	7,052	6,091	6,153	6,460	7,714
Consumer retail food outlay	58,900	59,300	60,700	62,200	64,200
Total National outlay for food and agriculture	43,040	41,785	42,457	44,673	47,548

[a] See table 6 for footnotes.

[b] Includes 60 million dollars administrative cost in 1963, 50 million dollars for 1964 to 1967.

MANDATORY SUPPLY PROGRAMS

Supply management programs generally involve marketing quotas to limit the quantities marketed. Restricted marketings through quotas coupled with an inelastic demand supposedly would allow higher or equitable farmer returns to be obtained through the market. Particular advantages of supply management programs are: they would permit flexibility in resource combinations, i.e., the least cost resource combination could be used in production, and treasury costs would be reduced since the farmers would get their return through the market. Disadvantages relate especially to administrative problems, including policing of violations. Some farmers also contend that mandatory supply controls conflict, to a greater extent than under other programs, with their values of economic freedom.

The mandatory control programs proposed generally would include several common features. If quotas were approved by farmers in a referendum, marketing certificates, based on some criterion such as past output, would be offered to producers. Allotments, based on projected national needs, would be estimated as the quantity that would bring a desired market price level. The quota and production levels to bring the desired price would be difficult to obtain precisely in a given year. Hence, most supply management proposals incorporate provisions to stabilize markets through government market purchases, sales and storage. Some supply management proposals would provide for negotiable marketing certificates.[56] Allowing inter-farm sales of marketing rights would be consistent with economic efficiency. But there could be opposition to the shift of production from some geographic areas and the concentration of production in the hands of the farmers with large amounts of capital. Benefits from acreage control programs would tend to become heavily capitalized into land values; the gains from marketing quotas also would tend to be capitalized into the control instrument or marketing certificates. The capitalization supposedly would be based on the expected annual benefits from the certificate, the expected life of the benefits and the discount rate. One proposal to avoid sizeable capitalization, is that the government sell or auction the marketing certificates each year.[57] This method, while avoiding capitalization of benefits would still require an annual

56/ Cochrane, Willard W., "An Appraisal of the Recent Changes in Agricultural Programs in the United States," Journal of Farm-Economics, 39:285-299, 1957.
   Cochrane, Willard W., Farm Prices: Myth and Reality, University of Minnesota Press, 1957, pp. 173-176.
   Cochrane, Willard W., "Some Further Reflections on Supply Control," Journal of Farm Economics, 41:697-717, 1959.
57/ Chryst, Walter E. and Timmons, John F., "The Economic Role of Land Resource Institutions in Agricultural Economics," pp. 252-277, in Center for Agricultural and Economic Adjustment. Dynamics of Land Use-- Needed Adjustments, Iowa State University Press, Ames, 1961.

"rent" for the certificates. Again, one would expect the quotas or certificates to be concentrated in the hands of producers with the greatest capital resourses. 58/

Projecting Mandatory Controls to 1967

This section includes projections of income and costs for two levels of mandatory control programs. Strict controls on output marketed could take several forms. One form might require an across-the-board reduction in some input such as land. A second approach might be supply management, limiting the quantities that could be marketed. The alternatives used in this section are general enough to be given either interpretation.

The incidence of costs and returns of a mandatory program depends on who administers the controls. If mandatory controls were administered by the government, an estimate of administrative costs would be charged to the treasury. If controls were administered by farmers themselves, administrative costs also would be incurred, but the magnitude might be difficult to judge because of the lack of historical precedence.

The mandatory control programs considered in this study are based on the following assumptions:

M_1: 10 percent reduction in all feed grain and wheat acreage, mandatory after 1963; administration by the government (with some modification the program could be interpreted as being administered by farmers); reduction in acreages occuring equally on all farms with average quality land removed from production; farmers required to leave idle or place in conservation use land diverted from production; no direct compensation for diversions; all government programs except for feed grains and wheat continuing as in the past; Conservation Reserve contracts terminating as they mature; stocks to be depleted at a rate that keeps farm prices from rising above current or 1963 levels; wheat priced competitively with other grains in the feed market. Program M_1 also could be interpreted as an across-the-board 10 percent reduction of marketings through supply management.

M_2: 20 percent reduction in feed grain and wheat acreages; when feed grain and wheat stocks reached 45 million tons, they would be maintained at that level with a subsequent reduction in feeding; other interpretations and qualifications same as for M_1.

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58/ The mechanics of a direct control program for the feed-livestock economy are discussed by Schertz and Learn. Their presentation primarily brings out the limitations of the approach in terms of products to be controlled, assignment of bases, transfer mechanics and enforcement. See Schertz, Lyle P. and Learn, Elmer W., Administrative Controls on Quantities Marketed in the Feed-Livestock Economy, Minnesota Agric. Expt. Sta. Tech. Bul. 241, 1962.

A Mandatory 10 Percent Reduction in Acreage of Feed Grain and Wheat Under Alternative M₁

The required reduction in average quality acreage under M_1 would reduce feed grain production below utilization, permitting stock depletions (table 28). Without special programs for wheat, wheat production would exceed nonfeed demand. The spillover of wheat into feed grain markets is projected to result in wheat priced competitively with feed grains. Average prices under M_1 for 1963-67 would be $1.07 for corn and $1.18 for wheat.[59] Continuation of the program beyond 1967 would raise prices above these levels since sales from stocks would no longer be feasible after carryover is reduced to 45 million tons.

Farm incomes, government cost and the consumer food bill which would be generated by M_1 are summarized in table 29. Cash receipts from farming would be maintained at high levels. However, lower direct government payments and increased production expenses would reduce the net farm income approximately $1.5 billion below the estimated $13 billion income under the 1963 compensatory payment program. However, if the annual outmigration from farms was maintained at two percent from 1964 to 1967, per capita net farm incomes under M_1 would be at approximately the same level in 1967 as in 1963.

Elimination of any compensatory payments (i.e. program D_5) and lowering of the wheat price from $1.93 to $1.18 per bushel, would permit sizeable savings in ASCS payments and government export subsidies. All government costs would drop $1.5 billion between 1963 and 1964 and remain at less than $6 billion annually from 1964 to 1967. Total national outlay for food and agriculture (last line of table 29) would initially decrease $1.7 billion and then regain its long-run tendency to increase. Because farm production tends to increase faster than utilization, a program such as M_1 would become increasingly less effective in controlling production. Opportunities for economics in government expense through market operations of the CCC also would be gradually reduced. To maintain farm prices at 1963 levels, therefore, would require increasing government costs or tighter output restrictions.

The estimated administrative cost for M_1 is $50 million annually. If farmers or some other group administered the program, the government administrative cost would be eliminated, but the group administering the control could be expected to incur comparable costs. The implications for net incomes and public costs for a mandatory 10 percent reduction in farm marketings under a program administered and controlled by farmers cannot necessarily be inferred from table 29. If the program were farmer-controlled, government sales out of stocks might not be permitted. Rather, it seems probable that a control program run by farmers would be slanted toward constant government stocks

[59] See year 1963, table 19 for prices of livestock and grains except wheat.

Table 28. Feed concentrate balance, with mandatory 10 percent reduction in feed grain and wheat acreages below the unrestricted level (Program M_1)[a].

	Actual			Estimated				
Crop Year	1960	1961	1962	1963	1964	1965	1966	1967
SUPPLY								
Stocks beginning of year[b]	114.0	126.9	110.9	97.0	79.4	69.4	61.3	55.9
Production of feed grains	155.6	140.6	143.1	138.2	142.2	145.9	148.9	152.3
Wheat-rye for feed	1.7	1.7	1.7	1.9	5.0	5.1	5.6	6.0
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c	c	c	c
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Total Available	302.2	294.7	282.4	266.4	257.4	251.6	247.6	246.4
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	128.3	129.7	130.2	132.0
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Feed grains exports	12.2	17.6	15.5	15.6	15.8	16.2	16.5	17.0
Feed grain for non-feed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	188.0	190.3	191.8	194.8
Stocks at end of year	126.9	110.9	97.0	79.4	69.4	61.3	55.8	51.6

[a] The Conservation Reserve is assumed to terminate as contracts phase-out. The current compensatory payment program is assumed for 1963; program M_1 for 1964 to 1967.

[b] Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[c] Assuming wheat production enters feed markets if greater than non-feed utilization, wheat stock changes included with all stocks after 1963.

Table 29. Estimated farm expenses and income, government cost and consumer outlay for food with mandatory 10 percent reduction below unrestricted acreage of feed grain and wheat acreage (Program M_1)[a]

	1963	1964	1965	1966	1967
	(Million dollars)				
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	35,826	36,869	36,987	37,559
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	3,010	2,980	2,980	2,900
Direct government payments	1,595	574	540	541	530
Gross income	40,633	37,446	40,389	40,480	40,989
Production expenses	27,371	27,889	28,527	28,936	29,446
Net farm income	13,262	11,557	11,862	11,544	11,543
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	-270	-219	-146	-116
Stock carrying charge	526	430	367	319	286
Export programs (feed grains and wheat)	1,200	567	563	559	552
ASCS (Acreage diversion and CR)	1,250	222	180	174	156
Costs of feed grain and wheat programs	2,479	949	891	906	878
Other government cost[b]	4,573	4,582	4,619	4,657	4,724
Total government cost	7,052	5,531	5,510	5,563	5,602
Consumer retail food outlay	58,900	59,300	60,700	61,800	63,100
Total National outlay for food and agriculture	43,040	41,357	42,379	42,550	43,161

[a] See table 6 for footnotes.

[b] Sixty million dollars administrative cost in 1963, 50 million dollars from 1964 to 1967.

and immediately curtailed production to raise farm prices and incomes. Of course, the government might be able to assure these implications depicted for M_1 (table 29) even if the program were managed by farmers, by threatening to remove export subsidies or other market supports if CCC stock depletions were not permitted.

A Mandatory 20 Percent Reduction in Acreage of Feed Grain and Wheat Under M_2

A program of strict controls to reduce feed grain acreage of average quality by 20 percent below unrestricted acreage (see program U_1, table 1) would quickly deplete stocks (table 30). The M_2 alternative initiated in 1964 would reduce feed grain and wheat stocks to 45 million tons by the end of 1965. Sales of stocks would maintain utilization and prices at or near current levels only through 1964. Net farm income would decline in 1964 because of reduced government payments and because of reduced commodity sales by farmers under CCC supported prices (table 28). With stocks frozen after 1965, feed utilization is projected to decrease to equal a small feed production. As a consequence, the projected price per bushel of corn is $1.43 in 1965, $1.63 in 1966 and $1.56 in 1967, output increasing in response to higher prices. Other feed grains and wheat would be priced accordingly. Livestock prices would increase as production decreased but would not be reflected in net income until 1966.[60]

Even with a decline of over $1 billion in ASCS payments from 1963 to 1967, net farm income would increase by over $1 billion because of increased gross receipts. CCC stock liquidation would hold net total government expenses for the farm program to less than $5.6 billion annually from 1964 to 1966. Even with government costs increasing to almost $6 billion in 1967, the treasury cost would be considerably below the cost of other types of programs. However, the reduction in government cost would come only with controls on farm output. The increased farm income from 1965 to 1967 essentially would entail the transfer of income from consumers to farmers through higher retail food prices.[61] Whether the advantages of supply control (lower treasury costs and higher farm commodity prices and incomes) outweigh the disadvantages (mandatory farm output restrictions and higher food bills) will have to be decided ultimately by society.

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[60] The respective 1966 and 1967 prices for cattle are $20.50 and $22.30 per cwt, for hogs $17.70 and $18.90 per cwt.

[61] Farmers would be affected as consumers as well as producers under unrestricted production and other program alternatives considered in this analysis.

Table 30.   Feed concentrate balance, with mandatory 20 percent reduction in all feed grain and wheat acreages below the unrestricted level (Program M_2)[a].

		Actual				Estimated		
Crop Year	1960	1961	1962	1963	1964	1965	1966	1967
SUPPLY								
Stocks beginning of year[b]	114.0	126.9	110.9	97.0	79.4	54.3	45.0	45.0
Production of feed grains	155.6	140.6	143.1	138.2	129.9	133.3	136.0	139.0
Wheat-rye for feed	1.7	1.7	1.7	1.9	2.2	2.2	2.5	2.9
Wheat stocks change	2.7	-3.8	-3.0	-1.2	c.	c	c	c
Imports of feed grains	.4	.5	.3	.5	.5	.5	.5	.5
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Total Available	202.2	294.7	282.4	266.4	242.3	221.0	215.3	219.2
UTILIZATION								
Grains fed	122.3	124.1	127.2	128.0	128.3	124.6	119.9	121.6
By-products feed fed	27.8	28.8	29.4	30.0	30.3	30.7	31.3	31.8
Feed grains exports	12.2	17.6	15.5	15.6	15.8	7.0	5.3	6.8
Feed grain for non-feed	13.0	13.3	13.3	13.4	13.6	13.7	13.8	14.0
Total utilization	175.3	183.8	185.4	187.0	188.0	176.0	170.3	174.2
Stocks at end of year	126.9	110.9	97.0	79.4	54.3	45.0	45.0	45.0

[a] The Conservation Reserve is assumed to terminate as contracts phase-out. The current compensatory payment program is assumed for 1963; program M_2 for 1964 to 1967.

[b] Stocks of corn and sorghum in all positions on Oct. 1; oats, barley and wheat on July 1.

[c] Assuming wheat production enters feed markets if greater than non-feed utilization, wheat stock changes included with all stocks after 1963.

Table 31.   Estimated farm expenses and income, government cost and consumer outlay for food with mandatory 20 percent reduction below unrestricted acreage of feed grain and wheat acreage (Program M_2)[a]

	1963	1964	1965	1966	1967
	(Million dollars)				
FARM COSTS, RETURNS AND NET INCOME					
Cash receipts from farm marketings	35,988	35,520	37,736	38,541	39,737
Non-money income (products consumed in home, rental on dwelling, etc.)	3,050	3,010	2,980	2,962	2,966
Direct government payments	1,595	574	540	541	530
Gross income	40,633	39,104	41,256	42,044	43,233
Production expenses	27,371	27,409	28,031	28,358	28,881
Net farm income	13,262	11,695	13,225	13,686	14,352
PUBLIC COSTS					
Government costs					
CCC (feed grains and wheat)					
Net acquisition cost	-497	-678	-251	--	--
Stock carrying charge	526	377	257	224	224
Export programs[b] (feed grains and wheat)	1,200	567	563	528	803
ASCS (Acreage diversion and CR)	1,250	222	180	174	156
Costs of feed grain and wheat programs	2,479	488	749	926	1,183
Other government cost[c]	4,573	4,592	4,629	4,667	4,734
Total government cost	7,052	5,080	5,378	5,593	5,917
Consumer retail food outlay	58,900	59,300	60,700	62,700	65,100
Total National outlay for food and agriculture	43,040	40,600	43,114	44,134	45,654

[a] See table 6 for footnotes.

[b] No subsidy on feed grains, subsidy on wheat to keep export at 600 million bushels.

PROGRAM MODIFICATIONS

Modifications of the several alternatives presented might provide programs which are more acceptable than the specific ones presented. For example, further analysis might compare the various alternatives when all are structured to provide equal levels of farm income, prices, government costs or consumer outlays. Few of the alternatives examined would result in the same projected incomes and costs and, therefore, are not strictly comparable. While some of the alternatives examined would result in an increase in both total and per capita net farm income until 1967, a large growth in total farm income is probably not an important short-run policy goal. Also, further analysis into the effects on the total economy of alternative farm programs might be beneficial. These effects were assumed insignificant for purposes of this study. But a program such as the unrestricted production with its significant reduction in consumer expenditures for food would have a substantial effect on the real income of consumers which could affect other sectors of the economy through increased demand for other goods.

APPENDIX

Procedure

The Appendix provides detail on the methods used for computations and on certain assumptions underlying projections in the text. Such detail is provided both for a more complete understanding of the quantities generated and for a basis of computations and projections for persons who might wish to use alternative assumptions and procedures. Computational methods are discussed and historical quantities and projections of items necessary for the analysis presented in the text are included. The discussion which follows will illustrate limitations in procedure and serve as a basis for projections by persons who wish to provide refinements and estimates based on other assumptions.

Acreage, Yields and Production

Yields per acre are based on the equations in table A-1, which express bushels per acre of feed grains and wheat as a function of planted acreage and a time trend. The trend and acreage interaction coefficients were estimated by least squares methods from annual 1940-60 data. Some adjustments of yields and interactions were necessary to account for recent trends. The equations indicate that the corn yield is projected to increase nearly one bushel per year due to improved inputs and production practices. Other things being equal, a one million acre increase in acreage of corn, oats, barley or grain sorghum decreases yield of the respective crops by .2 bushel.

The planted acreage is estimated from past data when conditions most nearly approximated those of the programs being considered. Adjustments in acreages are made for shifts in rotation and abandonment of marginal cropland.

Feed supplies are allocated among livestock alternatives according to relative production response potentials.[1]   In general, livestock with a short

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[1] Allocation of feed supplies among major livestock sectors and supply response for livestock groups were not based on a formal system of equations. Rather, the livestock response was based on separate supply response estimates for individual livestock groups and on judgement about feed allocation patterns. Provision for interaction between sectors such as beef and dairy may not be adequate. For estimates of livestock supply elasticities and feed demand response, see Mauldon, Roger Gregory, An Econometric Analysis of the Supply of Livestock Products and Demand for Feed Grains. Unpublished Ph.D. thesis, Iowa State University Library, Ames, Iowa. 1962. See also Buchholz, H. E., Judge, G. G., West, V. I., A Summary of Selected Estimated Behavior Relationships for Agricultural Products. Illinois Agr. Exp. Sta. Res. Report, AERR-57. Urbana, Illinois. October 1962.

Table A-1. Coefficients of equations expressing yield per planted acre
as a function of the time trend and current acreage.[a]

Item	Constant	Trend(T)	Acreage-Yield Interaction(A)
Corn	3.3	.987	-.00020
Oats	32.3	.130	-.00020
Barley	9.6	.340	-.00020
Grain Sorghum	-39.4	1..130	-.00020
Wheat	9.5	.340	-.00015

[a] The form of the equation is $Y = a + bT + cA$ where Y is predicted
yield (bushel/acre); T = time (1940 = 40, 1941 = 41, etc.); A = planted
acreage of crops (thousand).

production cycle are assumed to expand most rapidly. A maximum rate of
livestock expansion is established, based on potential production response and
minimum acceptable or realistic prices. The lower prices for some programs
discussed in the text are assumed to generate an aggregate supply response.
The aggregate supply elasticity, .15 in four years, is based on a previous
study.[2] The aggregate supply response would alter the yields indicated by the
equations in table A-1. Thus an aggregate adjustment (not an individual crop
yield adjustment) is made in the data.

Farm Costs and Incomes

Cash receipts from farm marketing. Cash receipts from farm marketings
indicate the cash income received by farmers from sales of crops and livestock.
The receipts depend on the quantities sold and the price elasticity of demand.
The matrix relating quantities and prices at the farm level is adapted from
Brandow with a number of modifications (table A-2).[3] The equations for fats
and oils are omitted. The trend and constant terms are adjusted and some of the

[2] Tweeten, Luther G. and Heady, Earl O., Resource Demand and Structure
of the Agricultural Industry. Iowa State University Press, Ames, Iowa,
(in press) Chapter 16.
[3] Brandow, G. E., Interrelations Among Demands for Farm Products and
Implications for Control of Market Supply. Pennsylvania Agr. Exp. Sta.,
University Park, Bul. 680, 1961.

elasticity coefficients are revised. The price elasticity of beef cattle, for example, is decreased (the price flexibility is increased) to conform more closely with alternative estimates.[4/] By inserting the logs of the quantities into the equations in table A-2, the logs of the prices are generated. Prices are also generated by equations linear in original, untransformed variables. But the equations in logarithms predicted prices with much greater reliability. The direct price flexibilities are along the diagonal of table A-2; the cross flexibilities (elasticities) are the off-diagonal elements. Because of the many opportunities to substitute one commodity for another, it is necessary to include the cross flexibilities.

Feed grain prices are derived from utilization rates and are assumed to be held at the levels indicated through government purchase and storage activities. After adjustments for exports, imports, by-product feeds and trends in utilization, a 1 percent increase in feeding is assumed to decrease feed grain prices 4 percent based on the derived demand for feed grain.[5/] Corn, grain sorghum, oats and barley are assumed to be perfect substitutes within the range of utilization in this study. Hence, the prices of these crops are expected to maintain a fixed ratio to each other and to the feed grain price index. The average ratios of the 1957-61 period provide the basis for projecting relative prices (not the aggregate feed grain price level) into the 1963-67 period. When production is unrestricted and prices are competitive with feed grains, the wheat price is set on the basis of weight and feeding value. The wheat price arbitrarily is set approximately 10 percent above the corn price when the wheat price is determined competitively with feed grains, i.e., when wheat production, with commercial and subsidized exports of 600 million bushels exceeds about 1.2 billion bushels.

To simplify the analysis, many of the programs are based on approximately current prices or, in the case of unrestricted production, on prices considered to be "minimum." The choice of maximum utilization and minimum prices is based on the rate of expansion of livestock production and prices and farm incomes "acceptable" to the public. Because of time required to expand livestock breeding stock, acquire feeding facilities, adjust the feeding and buying operations, etc., some period is required to increase livestock production to very high levels. These rates are reflected in supply elasticities estimated for the various crops and livestock products. It would simply not be possible, for example, to place all excess feed grain on the market

4/ See, estimates of price elasticities in Shepherd, et.al., Production, Price and Income Estimates and Projections for the Feed-Livestock Economy, Iowa Agr. Exp. Sta., Ames, Iowa, Special Report 27, August 1960 and Foote, Richard J., Price Elasticities of Demand for Nondurable Goods, With Emphasis on Food, U.S. Department of Agriculture, (AMS-96), Washington, D. C., 1956.

5/ Brandow, op. cit., also see Foote, et.al., The Demand and Price Structure for Corn and Total Feed Concentrates, U.S. Dept. of Agr., Tech. Bul. No. 1062, Washington, D. C., 1952; and Meinken, Kenneth W., The Demand and Price Structure for Oats, Barley and Sorghum Grains, U.S. Dept. of Agr., Tech. Bul. No. 1080, Washington, D. C., 1953; and Meinken, Kenneth W., The Demand and Price Structure for Wheat, U. S. Dept. of Agr., Tech. Bul. No. 1136, Washington, D. C., 1955.

Table A-2. Demand equations for livestock and livestock products at the farm level, expressing prices as a function of quantity.

Log of Prices	Constant Term	Logarithm of Quantities of:								
		Cattle a/	Calves a/	Hogs a/	Sheep a/	Chickens a/	Turkeys a/	Eggs b/	Milk c/	Trend d/
Cattle e/	2.07800	-1.6270	-.0738	-.2787	-.0363	-.1458	-.0248	-.0245	-.0283	.02100
Calves e/	.98360	-.5041	-1.0506	-.3610	-.0470	-.1887	-.0313	-.0237	-.0272	.01600
Hogs e/	3.03000	-.4180	-.0822	-2.3269	-.0478	-.1929	-.0331	-.0351	-.0407	.01624
Sheep e/	.80600	-.5026	-.0989	-.4460	-.5832	-.1917	-.0317	-.0212	-.0243	.01237
Chickens e/	1.73530	-.4750	-.0932	-.4205	-.0450	-1.4907	-.1375	-.0301	-.0347	.02156
Turkeys e/	.83510	-.3112	-.0612	-.2757	-.0295	-.5364	-1.1332	-.0265	-.0307	.01866
Eggs f/	2.63552	-.1018	-.0159	-.0856	-.0068	-.0348	-.0087	-3.5000	-.0648	.00293
Milk g/	.98507	-.0506	-.0079	-.1189	-.0033	-.0172	-.0043	-.0230	-2.6390	.01834

a/ Million pounds slaughtered.
b/ Million dozen sold.
c/ Million hundredweight sold.
d/ Time trend in original units -- 1956 = 0, 1957 = 1, etc.
e/ Dollars per pound.
f/ Dollars per dozen.
g/ Dollars per hundredweight.

immediately and expect it to be utilized in an orderly manner and at prices acceptable to farmers or the public. Thus, a limit is set on the rate of feed utilization and expansion of livestock output consistent with past estimates of livestock supply elasticities and expansion rates. Any feed grain production above this maximum rate is assumed to go into stocks or into exports or other channels.

Poultry products are estimated to respond most rapidly to enlarged feed grain supplies, followed by pork and mutton production and finally by beef and dairy cattle. These relationships are not always apparent in table A-3 because of the phasing of commodity cycles and trends in the variables. Poultry and pork are assumed to be in relatively large supply and use in 1963. The upward trends in these variables result in rather rapid saturation of markets due to changes in tastes and preferences and income elasticities. Consequently, while the increase in beef is relatively less than pork in 1964, the expansion of cattle production is large thereafter and is consistent with economic adjustments of production and consumption in markets relatively most favored by high price and income elasticities. Despite low income elasticity for food, a negligible time trend in production and a stable per capita consumption level, total national utilization of a commodity can increase approximately 1.75 percent per year due to the population trend (shown in table A-3) without affecting price adversely.

Non-money income. Non-money income includes the value of farm produced commodities consumed in the home and the gross rental value of farm dwellings. The type of farm program influences the prices of farm commodities consumed in the home and hence the total value of these commodities. Consequently, the non-money income is adjusted for the changes in commodity prices arising from each type of program (table A-4). Only livestock prices are used, since the crop prices (mainly feed grains and wheat) that are considered in this study comprise only a small portion of the products consumed in the home. A downward trend in dwelling-value is assumed in table A-4 because of the declining number of farms and farmsteads. While it can be argued that the number of farms and therefore the aggregate rental value is affected by the type of program, this influence is considered small and is not recognized in this study.

Direct government payments. Direct payments to farmers are made under various programs: Sugar Act, Wool Act, Soil Bank (Acreage Reserve and Conservation Reserve), Great Plains Conservation and land diversion payments for feed grains and wheat under the 1961-63 type programs (table A-5). Payments to farmers for non-recourse loans and other operations of the Commodity Credit Corporation are included with cash receipts and not with direct payments.[6]

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[6] Farm earnings from storing CCC stocks are not included with farm income.

Table A-3. Per capita United States consumption of meat from 1960 to 1967 with maximum expansion of livestock output.

	Actual[a/][c/]		Estimated				
	1960	1961	1963	1964	1965	1966	1967
	(Pounds Per Capita)						
Beef	67.3	69.5	72.0	73.0	75.5	80.5	86.5
Veal	5.6	5.2	5.4	5.4	5.5	5.6	5.9
Lamb and Mutton	4.3	4.5	4.2	4.3	4.4	4.5	4.6
Pork	60.7	57.8	60.0	61.2	62.0	61.0	60.0
Poultry[b/]	34.4	37.8	37.0	38.0	38.5	39.0	39.5
Total	172.3	174.8	178.6	181.9	185.9	190.6	196.5
Population (million)	180.4	183.5	190.1	193.4	196.8	200.3	203.7

a/ Data unavailable for 1962 when manuscript was prepared.
b/ Includes equivalent ready-to-cook weight of chickens and turkeys.
c/ Source: United States Department of Agriculture, Consumption of Food in the United States 1909-52, Supplement for 1961. September 1962. pp. 35-37.

Table A-4. Non-money farm income, including the value of farm products
           consumed in the home plus the rental value of the farm
           dwelling.

Year	Products consumed[b]	Rental value
	(Million Dollars)	
1960	788	2,441
1961	741	2,444
1962	720	2,380
1963	690	2,360
1964	660 P/100[a]	2,350
1965	640 P/100	2,340
1966	620 P/100	2,330
1967	600 P/100	2,300

a/ P is the livestock price index, 1963 = 100, divided by 100 when
   multiplied by 660, etc.
b/ The 1963-67 non-money income is estimated by correcting for changes
   in livestock prices only because feed grains and wheat (the only crops
   assumed to be affected by the programs in this study) are not considered
   to directly comprise an appreciable proportion of the farm products
   consumed in the home.

Payments for several types of programs such as the Wool Act and Sugar Act are unaffected by the programs considered in this study; however, direct payments for land diversion are a function of the type of feed grain and wheat program. Consequently, adjustments are made in direct government payments for each program, depending on the government cost to be discussed in a later section.

Production expenses. Production expenses are a function of the type of program for agriculture. Unrestricted production permits greater output and requires more inputs. However, a supply response due to the resulting low commodity prices tends to decrease use of inputs. Also low commodity prices mean lower input prices, particularly for purchased feed and livestock inputs. However, the reduction in input prices may not be realized until the year following a decline in commodity prices. The change in feed and livestock input prices tends to be a function of the proportion of these inputs originating from farm sources. Nearly 100 percent of livestock input purchases are of farm origin, but only 50 percent of the feed input purchases can be traced back to the farm. Since prices of inputs with nonfarm origin tend to be unresponsive to economic conditions on the farm, adjustments have to be made accordingly. We also adjust prices for a net inflationary trend, assuming it to be approximately 1 percent per year for all farm inputs. The annual 1 percent trend can be interpreted as reflecting the greater influence of inflation on input prices than on output prices.

The above considerations are incorporated into the following equation expressing aggregate operating and farm production expenses:

(Operating expenses excluding hired labor.)

$$E_0 = \left\{ \left[5,300 \left(1 + \frac{\Delta P_{Ft-1}}{200} \right) + 2,800 \frac{P_{Bt-1}}{100} \right] \frac{L_t}{100} + 5,280 \frac{F_t}{100} + 3,520 \right\} 1.0k$$

E_0 = operating expenses in million current dollars.
P_F = feed grain price index, 1963 = 100.
P_B = cattle and calf price index, 1963 = 100.
L = index of livestock production, 1963 = 100.
F = index of feed grain production, 1963 = 100.
k = 1 in 1963, 2 in 1964, etc.
t = present year, t-1 = previous year.

Capital depreciation and damage, cash "overhead" and other production expenses above operating costs are assumed to be unaffected by prices. Hence, production expenses E_p, including hired labor, are computed as $E_p = E_0 + 10,200(1.0k)$. E_p is in million current dollars and other variables are defined as above.

Table A-5. Direct government payments to farmers.a/

Year f/	ACP	Sugar Act	Wool Act	Soil Bank b/	Conservation c/	Feed Grain d/	Feed Grain and Wheat
					(Thousand Dollars)		
1959	210,000	38,907	--	--	--	--	--
1960	213,000	40,412	55,000	378,000	6,029	--	--
1961	229,850	44;603	56,198	333,577	6,233	4,432	809,463
1962	230,000	45,000	57,000	312,000	6,200	4,400	805,000
1963	235,000	46,000	58,000	312,000	6,300	--	--
1964	240,000	47,000	59,000	222,000	6,400	--	--
1965	245,000	48,000	60,000	180,000	6,500	--	--
1966	250,000	49,000	61,000	174,000	6,600	--	--
1967	255,000	50,000	62,000	156,000	6,700	--	--

a/ The ACP, Sugar Wool and special conservation programs are assumed to be unaffected by the feed grain and wheat programs analyzed in this study.

b/ Estimated direct payments from 1962 to 1967 based on a Conservation Reserve program of 26 million acres in 1963, 18.5 million in 1964, 15 million in 1965, 14.5 million in 1966 and 13 million in 1967. If the Conservation Reserve diversion programs are expanded direct payments would be larger.

c/ Special conservation programs; Conservation Reserve payments are included with the Soil Bank.

d/ Advance payment made the previous year (t-1) for feed grain programs in effect during the current year (t), e.g., 1962 feed grain program payments made in 1961 totaled $4,432.

e/ For several programs presented in the text, feed grain and wheat compensatory payment schedules are projected to 1967.

f/ 1959-61 actual data, 1962-67 are estimated.

Public Costs

Public costs consist of two major components -- government cost and consumer outlays for food. We divide government costs into several categories to illustrate the impact of various programs on each.

Commodity Credit Corporation (CCC). The two principal activities of the CCC are market operations (buying and selling) and storage. In this study, we base the cost of buying operations on the market price of grain and the volume purchased. Quantities taken under loan are treated as CCC purchases and the current loan "payments" are included in gross receipts from farm marketings. Sales of CCC stocks do not bring current market prices because of deterioration in quality. Based on past history and assumed quality of CCC stocks, a resale value of 70 percent of the going market price is assumed on CCC stocks.

Storage costs include cost for handling of grain, interest on investment, storage facility depreciation, and other costs. Total annual storage cost for corn is estimated to be 20 cents per bushel. The 20 cents are divided into 11 cents for storage facility, four cents for interest, three cents for shrinkage, etc., and two cents for handling. For general feed grains the annual carrying cost is $7 per ton. Total annual storage cost is computed on the basis of average beginning and ending year stocks corrected for the proportion of stocks held by CCC and multiplied by $7 per ton. Commercially owned stocks are assumed to include 10 million tons of feed grains and 3 million tons of wheat. The procedure used is not exact because of the seasonal pattern of stockholdings, but available data do not warrant further refinements.

No credit is made to farm income for income earned from storage operations since the percentage of stock held by farmers varies widely and there appears to be no adequate method for ascertaining the farm share under each type of program.

Export programs. Estimates of export subsidies are perhaps the most arbitrary costs used in this study. To compute export subsidies under various prices, it is necessary to have knowledge of commercial and export demand for feed grain and wheat. This demand depends not only on the purely economic factors, but also on the institutional measures taken by foreign countries to maintain export markets or to restrict imports. These cannot be predicted; thus the following commercial export demand relationships are highly arbitrary. However, because the cost of commodity programs for agriculture depends strongly on the commercial export demand, we feel that some estimate of foreign market potential is necessary.

The commercial demand schedule is presented for wheat in table A-6. Given the export demand schedule, the subsidty to export 600 million bushels of wheat (the level of wheat exports assumed in this study unless otherwise

indicated) depends on the type of export program. In this study, the procedure is to multiply the subsidized portion by market price. For instance, if the market price is $1.75 and 600 million bushel are to be exported, 500 million bushels must be subsidized at $1.75 per bushel for a total subsidy of $875 million. The procedure "cuts off" the portion under the commercial demand curve lying to the right of the given quantity (the area 100 and to the right in the above case). If the government could have commercial groups finance that portion under the demand curve and to the right of the commercial exports at the going market price, the export subsidy would be less than that indicated.

The export equation for feed grains is as follows: $Q_E = 22.4 + .5T - .15 P$ where Q_E is million tons of feed grain exports, T is a trend (1956 = 0, 1957 = 1, etc.) and P is the feed grain-price index (1957-59 = 100). In corn equivalent price, the equation is: $Q_E = 22.4 + .5T - 14 P_c$ where P_c is the current corn price per bushel. The annual increase in exports is estimated to be one-half million tons. If $P_c = $1.10 per bushel in 1964, the commercial exports of feed grains would be 11.4 million tons. A drop in the price P_c to 90 cents per bushel would allow commercial exports of 14 million tons. For example, if desired exports are 14 million tons the necessary subsidy would fall from (14-11.4)($1.10 x 36 bushel/ton) = $104 million to zero with the fall in the feed grain price from a corn equivalent of $1.10 per bushel to 90 cents per bushel in 1964.

Table A-6. Commercial export demand schedule for wheat.

Wheat Price	Commercial Exports
(Dollars/Bushel)	(Million Bushel)
2.00	60
1.75	100
1.50	150
1.25	200
1.00	300
.75	350

It may be useful to note that even if the level of those variables in this study are not completely accurate, this does not preclude useful estimates of the change in the estimates among programs. Since we are especially concerned with comparisons among programs and we use the same techniques throughout, an inexact estimate of commercial export demand, for example, need not negate the usefulness of the results.

Agriculture Stabilization and Conservation Service (ASCS). Costs under ASCS include payments for land diversion, such as the 1961-63 compensatory payment-type programs and for the Conservation Reserve (CR). In this

study, the cost of the acreage diversion programs is based on the value of production removed. The 1961 emergency feed grain program has been estimated to have removed 90 cents to $1.20 of production for each $1 of diversion payment. We use in this study an estimate of $1.15 removal for each $1 spent on compensatory payment-type programs.

Conservation Reserve (CR) program costs are computed for several levels of acreage removed from production. The cost per acre depends on the productivity of land removed, the type of program, the prices of crops and the attitude of farmers. Programs that allow whole or part farm participation and do not require equal participation in all areas generally involve the lowest cost. It also can be demonstrated that program costs increase as the program is expanded. The rent R or profit per acre may be defined as gross revenue TR less total operating (or variable) costs TVC, i.e., R = TR-TVC. It is apparent that if Conservation Reserve payments are equal to R, the "profit" per acre will be the same if the land is farmed or put in CR. On marginal land the operating costs nearly equal the revenue and the rent is very low. Hence, a given CR payment tends to remove relatively more production when spent on poor land than on good land. But to remove a given amount of production, it is necessary to remove more acres of low productivity than of high productivity land.

One measure of the efficiency of the CR is the value of crops removed per dollar of government outlay. If the payment per acre is C, the efficiency is found from the foregoing expression for rent by dividing the previous rent equation by C.

$$\frac{R}{C} = \frac{TR}{C} - \frac{TVC}{C}$$

Since C must be only slightly greater than R to remove the land and $\frac{TR}{C}$ is efficiency E, the expression can be written approximately as:

$$\frac{TVC}{C} = E - 1$$

If E = 2, the savings in operating cost equal the CR payment (C). On poor land, TVC tends to be high relative to C and the efficiency is large. But as the program is extended to better land, the ratio TVC/C declines and consequently the value of production removed per dollar spent on CR (efficiency E) also declines. As variable costs approach O, E approaches 1. That is, a given outlay C for Conservation Reserve decreases crop production only equal to the value of the payment. Also, it is expected that with a large CR program, say 60 million acres, increased psychological resistance of farmers to the program would increase the ratio R/C and thus raise the cost and lower the efficiency of the program. Some farmers would demand a premium above a theoretically derived rent because of aversion to government programs.

Estimated yields on Conservation Reserve acres in crop years 1959 and 1960 and projected yields for the 1964-67 period are indicated in table A-7. The yields of crops other than corn appear to be unusually high for crop years 1959 and 1960 and are scaled downward relative to corn in the 1964-67 crop years. In crop year 1959/60, feed grains and wheat make up 61 percent of CR acreage. For the 1964-67 period, this proportion is projected to increase to 80 percent since the program is assumed to be geared to feed grains and wheat and is not assumed to affect significantly the acreages of other crops. Although the crop yields are lower for the 1964-67 period, the higher percentage of CR acres taken from grains increases the tonnage removed of feed grains and wheat per CR acre from .520 tons in 1959-60 to .546 tons in 1964 and .564 tons in 1967.

Conservation Reserve acreage currently contracted is assumed to yield .5 ton of feed grains per acre. If the feed grain price is $1.10 per bushel (corn equivalent) then the value of production removed per acre approximately is $50 (20 percent value added for crops other than feed grains) multiplied by .5 tons (yield) or $25. The CR cost per acre is considered to be $12; thus the efficiency is 25/12 = 2.1. While this efficiency is lower than some estimates for the 1959-60 period, it is still quite high.[7] A new expanded program for 1964-67 could not be expected to be this efficient (table A-8). The estimated efficiency of the new program for removal of 20 thousand tons of feed grains and wheat can be computed from tables A-7 and A-8. If corn is $1.10 per bushel, the CR cost per ton removal is 28 ($1.10) = $30.80. The tonnage removed per acre in 1965 is .552 from table A-7; hence the cost per acre is $17. The projected program costs are greater because more production is removed. The cost of the CR is directly related to feed grain prices. A program costing $17 per acre with corn prices at $1.10 per bushel could be expected to cost about $23 per acre with corn priced at $1.50 per bushel.

The 1964-67 CR program in tables A-7 and A-8 assumes whole or part farm participation on a low bid basis and allows up to 50 percent participation in any area. Grazing on land would not be permitted.

Other government costs. "Other government costs" include overhead administrative costs of grain commodity programs as well as a greater number of expenses only remotely related to feed grains and wheat. These costs include sizeable outlays for dairy, cotton, tobacco, wool, sugar and other commodities. In addition, these costs entail government expenditures for ACP, research, school lunch, extension, special conservation, FHA, REA, food stamp plan and many others too numerous to mention. These costs are included for at least two reasons. First, while they cannot be directly imputed to feed grains and wheat, nearly all of these expenditures influence the grain programs considered. Without the sizeable dairy and school lunch programs, for example, the level of acreage removals and costs of Conservation Reserve

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7/ Christensen, Raymond P. and Aines, Ronald O. Economic Effects of Acreage Control Programs in the 1950's, U. S. Dept. of Agr., Report No. 18, Washington, D. C., 1962.

Table A-7. Estimated yields and composition of the actual Conservation Reserve program for 1959-60 and the projected program for 1964-67.

	Portion of Conservation Reserve Acres		Yields on Conservation Reserve Acres			Portion x Yield			
	1959-60 a/	1964-67(est) b/	1959-60 a/	1964-67	1964-67	1964	1965	1966	1967
	(Percent)		(Bushels)	(Bushels)	(Tons)				
Corn	16	19	40	40	1.12	.213	.215	.217	.219
Barley	6	8	28	22	.53	.042	.043	.044	.045
Oats	14	17	38	27	.43	.073	.074	.075	.076
Grain Sorghum	14	18	36	24	.67	.121	.122	.123	.124
Wheat	11	18	22	18	.54	.097	.098	.099	.100
Tons removed per acre by Conservation Reserve						.546	.552	.558	.564

a/ Based on data in USDA, Economic Effects of Acreage Control Programs in the 1950's, Agr. Econ. Report No. 18, 1962. The estimated tonnage of feed grains removed per acre of Conservation Reserve in 1959-60 is estimated to be .52. The yield of crops other than corn appear to be unusually large in 1959-60, hence are scaled down based on the relationship between past U.S. yields of these crops and corn on all acreage.

b/ A higher percentage of Conservation Reserve acres is assumed to be in feed grain and wheat land in 1964-67, because (1) wheat acres are unrestricted resulting in more wheat land being placed in Conservation Reserve and (2) to comply with our assumption about other crop programs, the 1964-67 Conservation Reserve program would have to be geared to taking feed grain and wheat land out of production.

Table A-8. Estimated cost[a]/ schedule of Conservation Reserve program for 1964-67.

Tonnage Removed (Thousand Tons)	Efficiency Ratio[b]/	Conservation Reserve Cost Per Ton (Dollars)
10,000 - 14,999	1.6	25 P_c[c]/
15,000 - 19,999	1.5	27 P_c
20,000 - 34,999	1.4	28 P_c
35,000 and over	1.3	31 P_c

a/ Based on 35.7 bushel of corn equivalent per ton of feed grains, the value of one ton is $(35.7)(P_c)$ where P_c is corn price per bushel. The value of production removed, assuming feed grain and wheat comprise 90 percent, is $35.7P_c/.90 = 40P_c$ per ton, which represents the cost of removing a ton of production if the efficiency ratio 's 1. Since the ratio is greater than 1 for all levels included, this cost must be divided by the efficiency ratio to find the cost of removing one ton of feed grain and wheat from production. The above rates apply to new land in Conservation Reserve. The rate for acreage currently under contract is $12/acre.

b/ Efficiency ratios vary with acreage and type of Conservation Reserve. Allowing placement of up to 50 percent of the acreage in a given area and whole farm participation but no grazing of diverted acreage, the efficiency ratios (crop value removed per dollar of Conservation Reserve) are as indicated. Efficiency ratios estimated by the USDA for the Conservation Reserve from 1957 to 1960 average 2.9; hence, the above estimates are much lower, but are set to preserve consistency with other estimates. The estimated efficiency of the Acreage Reserve from 1957 to 1958 is 1.7. Bottum estimates that a payment of 70 percent of the gross crop value (efficiency ratio of 1.4) would be required for large acreage removals. Cf. USDA, Economic Effects of Acreage Control Programs in the 1960's, Agr. Econ. Report, No. 18, 1962 and Bottum, Carroll J., et al., Land Retirement and Farm Policy, Purdue Agr. Exp. Sta. Res. Bul. 704, Lafayette, Indiana, 1961.

c/ P_c is corn price per bushel.

program examined in this study would have to be much greater. Also, the stock accumulation would be much larger with "unrestricted" production. A second reason for including the cost in the budgets of programs not directly related to grains is to illustrate that a program restraining government action in the feed grain and wheat sectors will not necessarily solve the budget problem of the USDA. Even the most austere program for grains could not be expected to reduce USDA outlay by over one-third.

Retail cost of farm food products. A given percentage increase in cash receipts from farm marketings at the farm level does not increase the total food bill at the retail level by the same percentage. Marketing and processing costs between the farm and the consumer currently comprise about 62 percent of the consumer food bill. In computing the consumer cost of food at each farm price and income level, an adjustment is made in marketing margins for changes in farm prices.[8/] In addition, the secular trend in marketing margins is taken into account in projecting consumer food costs from 1963 to 1967. The estimated retail food bill with (a) the maximum rate of expansion in livestock production and (b) with a continuation of 1962 prices are presented in tables A-9 and A-10, respectively. Even with lower farm prices and incomes under unrestricted production, the food bill increases over time because of rising marketing and processing costs and because of the rise in population. If per capita real income increases approximately 2 percent per year as projected, the reduced food expenditures will continue to allow consumers to spend a larger percentage of their income on entertainment, education, social overhead and other nonfood expenditures.

8/ Marketing margins were based on past USDA estimates and are extensions of past margins. Consideration of different price levels for farm products is included in estimating these margins.

Table A-9. Total retail cost of civilian purchases of farm food products with
a maximum rate of expansion of livestock production and maximum
utilization rates.

	Actual[a/b/]		Estimated				
	1960	1961	1963	1964	1965	1966	1967
	(Billion Dollars)						
Beef and veal	8.8	9.2	9.7	9.9	10.1	10.5	10.6
Pork	6.0	6.1	6.3	6.3	6.2	6.2	6.0
Sheep and lambs	.5	.5	.5	.5	.5	.5	.5
Chickens	1.8	1.8	2.1	2.1	2.1	2.1	2.1
Turkeys	.5	.6	.6	.6	.6	.6	.6
Eggs	2.4	2.5	2.7	2.5	2.4	2.3	2.3
Dairy products	10.3	10.3	10.6	10.4	10.6	10.9	11.1
Others	25.2	25.5	26.4	26.5	26.6	26.6	26.5
All farm foods	55.5	56.4	58.9	58.8	59.1	59.7	59.7

a/ 1962 data unavailable when manuscript was published.
b/ Source: USDA, Supplement for 1961 to Consumption of Food in the
United States, 1909-52, Agricultural Handbook, No. 62. September 1962.

Table A-10. Total retail cost of civilian purchases of farm food products with normal rates of expansion of livestock production and normal utilization rates.

	Actual[a/b/]		Estimated				
	1960	1961	1963	1964	1965	1966	1967
			(Billion Dollars)				
Beef and veal	8.8	9.2	9.7	10.0	10.4	10.8	11.2
Pork	6.0	6.1	6.3	6.3	6.5	6.6	6.7
Sheep and lambs	.5	.5	.5	.5	.5	.5	.6
Chickens	1.8	1.8	2.1	2.1	2.2	2.2	2.3
Turkeys	.5	.6	.6	.6	.6	.6	.6
Eggs	2.4	2.5	2.7	2.6	2.6	2.6	2.6
Dairy products	10.3	10.3	10.6	10.8	11.1	11.3	11.5
Others	25.2	25.5	26.4	26.8	27.2	27.6	23.0
All farm foods	55.5	56.4	58.9	59.7	61.1	62.2	63.5

a/ 1962 data unavailable when manuscript was published.
b/ Source: USDA, Supplement for 1961 to Consumption of Food in the. United States, 1902-52. Agricultural Handbook, No. 62, September 1962.